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CAMBRIDGE PAPERS

BY

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PREFACE.

THIS volume contains papers on some questions of local history put together, mostly for undergraduate societies and magazines, at various times during the last twenty-five years. I have included a memoir, written for a London Society, on Newton's *Principia*, a work that profoundly affected the development of University studies in the eighteenth century, and a chapter on the History of the Mathematical Tripos, which at one time appeared in my *Mathematical Recreations and Essays*, since these are concerned with Cambridge subjects.

I print the papers, whether long or short, and whether read at length or, as was more often the case, curtailed in delivery, substantially in the form in which they were first written. This leaves allusions which bear evidence to their domestic origin, and involves, in those of them dealing with cognate subjects, some repetition of facts. If these are defects they could be removed only by rewriting much of what appears here; it seems to me preferable to let the essays stand in their original forms, save occasionally for the addition of a paragraph or

sentence dealing with what has happened since they were first presented. The dates in the text are reckoned in the modern style, taking the year as beginning on the first day of January.

W. W. ROUSE BALL.

TRINITY COLLEGE, CAMBRIDGE.
January, 1918.

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PART I.

Concerning Trinity College.

CHAPTER I.

THE FOUNDATION OF TRINITY COLLEGE.

TRINITY COLLEGE was founded by Henry VIII in 1546. To obtain a site for it, he suppressed King's Hall and Michael-House, two medieval colleges which were built on or owned most of the ground now occupied by the Great Court, and with their revenues, largely augmented by property of dissolved monasteries, he endowed it. The scheme of the College and his objects in founding it are stated in his letters patent of 19 December 1546, and particulars of the income assigned by him to the foundation are set out in his charter of dotation dated 24 December 1546. These documents have been printed* and are readily accessible, but the history of the events leading up to the foundation of the College is less generally known. I cannot promise that the story in itself is interesting but the material facts have never before been brought together† so its telling is justified.

* *Cambridge Documents* issued by the Royal Commissioners, London, 1852, vol. III, pp. 365–410.

† This was true some years ago when this paper was written, but since then I have given part of the story in a booklet on the King's Scholars and King's Hall which, at the request of the College, I wrote in 1917 for the meeting held to celebrate the six-hundredth anniversary of the execution by Edward II of the writ establishing those scholars in the University of Cambridge.

After the dissolution of the monastic houses, anxiety was felt in Cambridge and Oxford lest they should suffer a similar fate. The policy of the suppression of the two universities and the confiscation of their property was openly advocated by politicians at court, and naturally great alarm was felt when in 1544 an Act* was passed empowering the king to dissolve any college at either university, and appropriate its possessions.

The universities were right in thinking that the danger was pressing, for Parker, who played a leading part in the affair, has put on record† the fact that after the passing of the Act certain courtiers importunately sued the king to have the possessions of both bodies surveyed, meaning afterwards to obtain the same on easy terms. In these circumstances the Cambridge authorities, says Strype, "looked about them and made all the friends they "could at court to save themselves." In particular they urgently begged the aid of two of their professors, John Cheke, then acting as tutor to the prince of Wales, and Thomas Smith, then clerk to the queen's council. Here is the letter‡ of the senate to Smith on the subject:

Si tu is es, Clarissime Smithe, in quem Academia haec Cantabrigiensis universas vires suas, universa pietatis jura

* 37 Henry VIII, cap. 4.

† *Correspondence of M. Parker*, Cambridge, 1852, p. 34.

‡ *Life of T. Smith* by J. Strype, Oxford, 1820, pp. 29–30.

exercuerit, si tibi uni omnia doctrinae suae genera, omnia reipub. ornamenta libentissime contulerit, si fructum gloriae suae in te uno jactaverit, si spem salutis suae in te potissimum reposuerit: age ergo, et mente ac cogitatione tua complectere, quid tu vicissim illi debes, quid illa, quid literae, quid respublica, quid Deus ipse pro tantis pietatis officiis, quibus sic dignitas tua efflorescit, justissime requirit: Academia nil debet tibi, imo omnia sua in te transfudit. Et propterea abs te non simpliciter petit beneficium, sed merito repetit officium: nec unam aliquam causam tibi proponit, sed sua omnia, et seipsam tibi committit. Nec sua necesse habet aperire tibi consilia, quorum recessus et diverticula nosti universa. Age igitur quod scis, et velis quod potes, et perfice quod debes. Sic literis, academiae, reipublicae, et religioni; sic Christo et Principi rem debitam et expectatam efficies. Jesus te diutissime servet incolumem.

Parker tells us that the London friends of the University, among whom Smith and Cheke were doubtless conspicuous, wisely took the line of welcoming an enquiry, but begged the king to avoid the expense of a costly investigation. Their representations were successful, and he issued a commission* dated 16 January 1546 to Matthew Parker (then vice-chancellor, and later archbishop of Canterbury), John Redman (warden of King's Hall, chaplain to the king, and later master of Trinity), and William Mey (president of Queens', and later archbishop-elect of York) to report to him on the

* *State Papers*, Domestic, 1546, vol. xxi, part i, no. 68. See also J. Lamb's *Documents*, London, 1838, pp. 58–59; *Correspondence of M. Parker*, Cambridge, 1852, p. 34.

revenues of the colleges and the numbers of students sustained therewith. The commissioners were capable and friendly.

The king must have been impatient to know the facts, for in less than a week, on 21 January, he ordered Parker to come to Hampton Court with the report. Immediate compliance was impossible, but the command may well have stimulated the commissioners to act as rapidly as possible. In fact they obtained the services of eleven clerks from the Court of Augmentations in London, and at once set to work to collect information.

The University was keenly alive to the risks it was incurring. To placate the king, the senate, on 13 February, put all its belongings at his service, and when forwarding a copy of the grace to Secretary Sir William Paget it reminded him of the value of the University to the state, and begged his protection. At the same time it addressed the queen, Katharine Parr, through Thomas Smith, imploring her advocacy*.

The queen replied† on 26 February. After complaining that he had written to her in Latin, though he could equally well have expressed himself in the vulgar tongue, she discoursed at length on the duties of members of the University, and, saying that

* *State Papers*, Domestic, 1546, part i, nos. 203, 204.

† *Ecclesiastical Memorials* by J. Strype, Oxford, 1882, vol. XI, part i, pp. 207–208; *Correspondence of M. Parker*, p. 36.

she was confident that her wishes in these respects would be fulfilled, she concluded her letter as follows:

I (according to your desires) have attempted my lord the King's Majesty, for the establishment of your livelihood and possessions: in which, notwithstanding his Majesty's property and interest, through the consent of the high court of parliament, his Highness being such a patron to good learning, doth tender you so much, that he will rather advance learning and erect new occasion thereof than [to] confound those your ancient and godly institutions, so that learning may hereafter justly ascribe her very original whole conservation and sure stay to our Sovereign Lord.

This was good news, and things now moved rapidly. By the end of February the commissioners had drawn up a detailed report giving the information required. It is printed* at length in the *Cambridge Documents*, 1852, and occupies nearly 200 pages.

The commissioners in person presented to the king at Hampton Court a brief summary of this report. We do not know the date of this interview, but conjecturally it may be put as being early in March. Parker has left† in his own handwriting a full account of their reception as follows:

In the end, the said commissioners resorted up to Hampton Court to present to the King a brief summary written in a fair sheet of vellum (which very book is yet

* *Cambridge Documents*, vol. I, pp. 105–294.

† *Correspondence of M. Parker*, pp. 35–36; J. Lamb's *Documents*, p. 59.

reserved in the college of Corpus Christi) describing the revenues, the reprises, the allowances, and number and stipend of every College. Which book the King diligently perused; and in a certain admiration said to certain of his lords which stood by, that he thought he had not in his realm so many persons so honestly maintained in living by so little land and rent: and where he asked of us what it meant that the most part of Colleges should seem to expend yearly more than their revenues amounted to; we answered that it rose partly of fines for leases and indentures of the farmers renewing their leases, partly of wood sales: whereupon he said to the lords, that pity it were these lands should be altered to make them worse; (at which words some were grieved, for that they disappointed *lupos quosdam hiantes*). In fine, we sued to the King's Majesty to be so gracious lord, that he would favour us in the continuance of our possessions such as they were, and that no man by his grace's letters should require to permute with us to give us worse. He made answer and smiled, that he could not but write for his servants and others, doing the service for the realm in wars and other affairs, but he said he would put us to our choice whether we should gratify them or no, and bade us hold our own, for after his writing he would force us no further. With which words we were well armed, and so departed.

This important interview was followed by a rumour that it was Henry's intention to found at Cambridge a new and magnificent college to serve as an enduring record of his interest in learning, and perhaps the University may have taken the queen's letter as indicating what was coming. It is believed that Henry had long entertained vague

ideas of the kind, but that the definite suggestion, which was encouraged by the queen, originated with Redman, who, as royal chaplain, had constant access to the king and considerable influence with him.

The preparations for Henry's proposed foundation were made with extreme speed: a wise course in view of his failing health and variable temper. It was decided to take advantage of the Act of 1544 and suppress King's Hall and Michael-House, using their grounds and adjoining property as the site of the new college. We have no reference to the appointment of commissioners for the business, though there is an allusion, quoted later, to receivers: perhaps the matter was left in the hands of the officials of the Court of Augmentations. Redman was the chief authority at Cambridge in the arrangements that had to be made there, and it was intended that he should be the first master of the new college when it was founded.

The two Societies above mentioned were (save for Peterhouse) the oldest in the University. To Trinity men their history has, naturally, great interest, and I interpolate a few remarks on this and their position in 1546.

The King's Scholars, normally thirty-two in number and of all ages from fourteen upwards, were established by Edward II under a warden in 1317 and incorporated in 1337. They had for their

original home a large house (King's Hall) situated on the grass plot and walk in front of the present chapel, and rapidly acquired all the adjacent land between the High Street (now known as Trinity Street) and the river, extending their buildings in various directions. Popular writers sometimes assert or assume that all medieval colleges were founded for poor students. That is not universally true. No condition of poverty was imposed on the scholars of King's Hall, nor was their life here penurious: they had a dining-hall, library, common room, chapel, kitchens, a brewery, a vineyard, a garden, and a staff of servants maintained by the Society, while a good many of them also kept their own private servants: they received a liberal allowance for daily commons, clothes and bedding were supplied from the royal wardrobe, and pocket-money was given to buy other things. They were appointed by the crown largely from among the families of court officials, nominations being restricted to those who knew Latin. After completing their course many of these students entered what we may call the higher civil service of the time in church or state.

In the report of the commissioners, the annual income of King's Hall was returned as £214. 0*s.* 3*d.* and the expenses as £263. 16*s.* 7*d.*; and it was stated that at the time there were on its boards, a master, twenty-five graduate fellows, and seven

undergraduate fellows, besides servants. The Society owned the patronage of the livings of Arrington, Bottisham, St Mary's Cambridge, Chesterton, Fakenham, Felmersham, and Grendon. According to the return, the normal annual expenditure of King's Hall, if all the scholars resided, required £182. 18*s*. 4*d*. for the emoluments of the warden and fellows (namely, £8. 13*s*. 4*d*. for the warden, £5. 10*s*. 0*d*. for each of twenty-five graduate fellows, and £5. 5*s*. 0*d*. for each of seven undergraduate fellows); £32. 2*s*. 0*d*. for the college servants (namely, the butler, barber, baker, brewer, laundress, cook, under-cook, and the warden's servant); £3. 1*s*. 4*d*. for the estate officers and quit-rents; £3. 19*s*. 4*d*. for the expenses of the chapel services and the bible-clerk; £5. 0*s*. 0*d*. for firing for the hall and kitchen; £5. 0*s*. 0*d*. for rushes for the hall; £5. 10*s*. 4*d*. for the exequies of the founder and the following refections; £29. 1*s*. 4*d*. for repairs and renewals; and £10 for extraordinary expenses.

The other College (Michael-House) whose buildings were transferred to Trinity was of a different type. It was founded by Hervey de Stanton in 1324 for a master and six secular clergy who wished to study in the University. Their original home was a large house on the site of the present combination room and the land round it; later they acquired all the property between Foul Lane and the river. At first the Society's means were barely

sufficient for its needs, but in time it received many gifts, and the foundation was increased to a master and eight priests with chaplains and bible-clerks. It had an oratory in its House but did not need a chapel as it owned St Michael's Church; traces of this ownership will be noticed in the arrangement for stalls (to be occupied by members of the Society) in the choir, which is sunk below the level of the nave and chancel.

In the report of the commissioners, the annual income of Michael-House was returned as £141. 13*s.* 1¾*d.* and its expenses as £143. 18*s.* 0*d.*; and it was stated that there were on its boards a master, eight fellows, and three chaplains, besides servants. Besides St Michael's Cambridge, the Society owned the patronage of the livings of Barrington, Boxworth, Cheadle, Grundisburgh, and Orwell. According to the return, the normal annual expenditure of Michael-House required a sum of £91. 10*s.* 8*d.* for the emoluments of the Society (namely, £7. 6*s.* 8*d.* for the master, £47. 17*s.* 4*d.* for the six fellows on the original foundation, £11. 6*s.* 8*d.* for the two Illegh fellows, £15 for three chaplains, one of whom served Barrington, and £10 for four bible-clerks), £1 for the auditor, £6. 6*s.* 8*d.* for college servants (namely, the cook, butler, barber, and laundress), rather more than £17 for the exequies of benefactors, £1. 13*s.* 4*d.* for the commemoration

refection, £20 for repairs, and £6. 6*s*. 8*d*. for extraordinary expenses. A clerical society like Michael-House had no difficulty in providing for due celebration of the exequies of its friends, and in fact more than twenty benefactors are mentioned by name as being thus commemorated every year. In 1544, the House, presumably with the object of averting its destruction, began to admit students resident elsewhere in the University, and in a couple of years no less than forty-eight students matriculated from it; the number of admissions must have exceeded this, but what was involved in such cases by admission is uncertain.

A scheme containing a "first plott or propor-"tion" for the new College was prepared for the king by the Court of Augmentations in London; it seems certain that this was worked out in collaboration with Redman. The clerk who drew it up was Thomas Ansill. The College, after its foundation, recognized its obligation to him in the matter and presented him to the vicarage of Barford which was and is in its gift. He preserved a copy of his scheme; this was purchased from his son by one of the fellows in 1611, and given to the College.

The manuscript of the suggested scheme, to which Mr Bird first called my attention, is endorsed *Distribucio Collegii* and headed "the proporcon diuised for Trinite College." It is undated,

but in a later hand it is added that it was made Anno 37 Hen. 8, and therefore before 22 April 1546. From internal evidence it must have been composed in or after March in that year, since those who graduated in that Lent term are described as being of the standing of the degrees then taken. Of those who graduated afterwards some are described correctly, others not so: doubtless Redman knew about the standing of the members of King's Hall and Michael-House, but he may well have made mistakes about the standing of some of the junior students of other colleges. If however we accept the endorsement as correct, we may fix the date of the composition of the plan as being in the early half of April, 1546. This manuscript has not been printed, and I proceed to describe it.

The object of the compilers of this scheme was to see what income would be required for the suggested new College, and to arrange how the income should be used; incidentally it reveals the general organization proposed. The constitution of the College, the various offices to be created, and the stipends intended are specified. In most cases the names of the proposed fellows, scholars, bedesmen, and servants are given, but generally the allocation of the proposed principal offices is not indicated and probably had not been then arranged. The names of the proposed fellows and scholars

agree with those appointed later, though the order is not always the same, but the provisional list of bedesmen differs from that of those ultimately nominated.

The *Distribucio* begins with a statement of the names and suggested stipends of the master and fellows. The stipend of the master was to be £100 a year: that of each of the next fifteen fellows (one of those proposed being a doctor of divinity, ten bachelors of divinity, and four masters of arts) was to be £10 a year and £1 a year for livery: that of each of the next twenty-five fellows (twenty-two of those nominated being masters of arts and three bachelors of arts) was to be £8 a year; that of each of the next twenty fellows and scholars (seven of the nominees being bachelors of arts and thirteen junior scholars) was to be £6. 13*s*. 4*d*. a year. The names are given and agree with those in the letters patent of 19 December.

There was to be a schoolmaster (Richard Harman) who was to have £20 a year, an usher of grammar (William Boude) who was to have £10 a year, and provision was made for forty childer grammarians, whose names are given, each of whom was to have £4 a year. This shows that it was intended that the foundation should include students in grammar, and the two teachers specially responsible for them were to be a schoolmaster and usher.

The question arises whether it was intended to found a grammar-school connected with the College or whether these grammarians were what we should call undergraduate scholars or exhibitioners. The former view is the correct one, for the royal commissioners in May 1549 definitely asked* the College "to surrender the Grammar Schole." This was done and the school was then absorbed in the College. Probably at that time the distinction between boys at the grammar-school and junior undergraduates was not regarded as important—the term grammarian or grammaticus being commonly used for a junior undergraduate as well as a school-boy†. This indifference to the distinction between the two classes is illustrated by the fact that of the grammarian school-boys named in the *Distribucio*, ten were already matriculated members of the University, nine matriculated from Trinity shortly after its foundation, and of the others six matriculated in 1548 or 1549 which is not inconsistent with their having been students of the University in 1546.

In 1547, the accounts include a particular payment for six boys of the grammar-school, and wages for one quarter for the schoolmaster and Mr Boude; thus showing that the school was then being carried on. In 1548, the accounts specify forty-two

* *State Papers*, Domestic, Edward VI, May 1549.

† Senior undergraduates were then commonly termed dialectici.

grammatici, in addition to certain graduates and dialectici, as being in residence, but in this year there is no mention of a schoolmaster or an usher though possibly they may be included among the ten lectors for whom provision is made. In 1551 the grammatici appear as discipuli, and thenceforth the grammarians were treated as undergraduate scholars.

The *Distribucio* next goes on to enumerate seven readers. Three of these were to be public or university readers, of whom one (John Maydew) was to read in divinity, one (John Cheke) in Greek, and one (Thomas Wakefield) in Hebrew, each at £40 a year. The other four were to be fellows of the College, of whom one (Simon Bridges) was to read in divinity at £6. 13*s*. 4*d*. a year, two in philosophy at £5 a year each, and one in logic at £5 a year: such stipends to be in addition to their fellowship emoluments. It would seem that Bridges or Briggs declined to accept the nomination to a fellowship at Trinity and accordingly was not appointed to the office. Provision was also made for two under-readers in logic at £2. 3*s*. 4*d*. each. Next are mentioned two examiners in scholastic acts at £5 a year each; and two chaplains at £6. 13*s*. 4*d*. a year each, one (Henry Man) for the fellows and the other (unnamed) for the childer and bedesmen. I note that Henry Man occupied for many years

rooms in the Great Court adjoining and on the west side of what is now known as the Queen's Gate.

The next entry is that of twenty-four almsmen or bedesmen at £6 a year each; the names of all but one are given, but the list differs somewhat from that appearing in the account book of 1547 of those appointed when the College began work. The unnamed bedesman was the cook of Michael-House, and it is impossible not to wonder whether his inclusion in this list (which involved his retirement from the kitchens) was due to the memory of indifferent dinners eaten by Redman when a guest at the high table of that House.

The *Distribucio* then returns to the enumeration of the officers and servants of the College. There were to be two bursars at £4 a year each; a vice-master at £5 a year; two deans to direct disputations of divinity and philosophy, one at £4 a year, and the other at £3. 6*s*. 8*d*. a year; eight bible-clerks, whose names are given, to serve the hall, choir and vestry, and to attend upon the curate when visiting, at £2. 13*s*. 4*d*. a year each; an organ-player at £6 a year and his commons; two butlers, the senior at £5 a year and the junior at £4 a year; a manciple at £6. 13*s*. 4*d*. a year; a master-cook at £6 a year; two under-cooks, one at £4 a year, and the other at £3. 6*s*. 8*d*. a year; and a turn-spit at £2 a year. There was also to be a barber at £5

a year; a laundress at £5 a year; a porter at £6 a year; a bricklayer at £4 a year; a carpenter at £4 a year; a mason at £4 a year; two stewards of lands at £5 a year each; an auditor for the lands at £10 a year; a receiver for the lands at £13. 6*s*. 8*d*.; and an attorney in the exchequer for the lands at £3. 6*s*. 8*d*. Allowance was to be made for the yearly distribution of alms to the amount of £20; and of another £20 to be spent on the mending of highways. The total expenditure contemplated amounts to £1286. At the end in another handwriting is added that allowance (amount unspecified) should be also made for wine and wax, riding, extraordinary charges, and repairs.

It must have been in April, or early in May, 1546, that the commissioners, or other officials concerned, took possession of King's Hall and Michael-House and the ground adjacent thereto. They at once made arrangements to shut up Foul Lane which ran across the present Great Court, to purchase such part of that court as did not belong to King's Hall and Michael-House, and to enclose the site. Stone and other materials for the new work were taken from the church and cloisters of the dissolved Franciscan monastery which stood on the land now occupied by Sidney Sussex College, and in a survey, dated 20 May 1546, those buildings are described as having been already partially

demolished in order to provide "towards the building "of the King's Majesty's new College."

It is probable that during this time members of King's Hall and Michael-House were in residence, and possibly also some of the members-elect of Trinity College. The cost of the maintenance of the House and the expenses of the alterations must have been heavy, but in December 1546, the Court of Augmentations was ordered* "to pay Dr Redman "of your new College in Cambridge £2000 towards "the establishment and building of the same, and "in recompense for revenues of their lands for a "whole year ended Michaelmas last, because the "rents were paid to your Majesty's receivers before "they had out letters patent for their donation." We have no record of these expenses, but I conjecture that this grant allowed a clean start to be made from Michaelmas 1546.

The members of the new College entered into possession of the buildings and began their academic life as members of Trinity College about Michaelmas 1546. The surrender of King's Hall and Michael-House to the king took place on 28 October, and arrangements were than made to pension the master and eight fellows of Michael-House and one fellow of King's Hall. Redman was appointed master of the new foundation.

* *State Papers*, Domestic, 1546, no. 647 (25).

The original members of the Society were selected from the whole University with the addition of a few Oxonians: it is believed that all the nominees were favourable to the new learning and the protestant faith. Of the forty childer grammarians named in the *Distribucio* all save one accepted the nomination: of these, six had been previously members of Michael-House, one a member of Pembroke, one of Peterhouse, one of St John's, and one of some unnamed College. Of the sixty students nominated to fellowships or scholarships in the letters patent, fourteen did not reside and presumably refused the nomination. Of the forty-six who accepted the office, thirty-six were graduates and ten were non-graduates. Of these thirty-six nominees, three came from Michael-House, one from King's Hall, two from Christ's, one from Corpus, one from King's, one from Pembroke, two from Peterhouse, one from Queens', one from St Catharine's, and three from St John's: of the colleges or hostels from which the remaining twenty had graduated, I can find no particulars. Of the ten non-graduates who accepted the office, one had been at Pembroke, one at Queens', two at St John's, and one at Trinity Hall: of the previous history of the remaining five I know nothing. Of the fourteen who did not reside and presumably declined the offer, eleven were graduates, of whom one had been

at Corpus, one at King's, one at Pembroke, three at Queens', two at St John's, and two at Oxford, and of the remaining graduate I can find no particulars. Of the three non-graduates who did not accept the nomination, one had been at Michael-House, one at Oxford, and of the other I know nothing. It appears from the account-books that there were also still in residence a few students* who had been members of King's Hall and Michael-House: it was only courteous to give these deposed students the hospitality of the House, and they occupied a different position to the pensioners and fellow-commoners who later were admitted in considerable numbers. We cannot prove or disprove the presence at this time of other students, but it is most likely that at first there were no residents in College other than those mentioned above.

The legal formalities connected with the surrender of the properties of King's Hall and Michael-House took a considerable time, and were not completed till 17 December 1546. The letters patent founding the College and the charter of dotation were signed a few days later†. The actual endowment granted was valued at £1640 net a year,

* Three fellow-commoners had matriculated from King's Hall in 1544.

† The charter of foundation, dated 19 December, and that of endowment, dated 24 December, are printed at length in the *Cambridge Documents*, vol. III, pp. 365–410.

which must have been deemed ample to provide for the expenses and the maintenance of the House. Comparing this income and the estimated expenditure with those of King's Hall and Michael-House we gather how much more important than these colleges was the contemplated new foundation.

Thus were King's Hall and Michael-House dissolved, but only to be merged in a new and nobler Society. The letters patent founding Trinity College state that Henry to the glory and honour of Almighty God and the Holy and Undivided Trinity, for the amplification and establishment of the Christian and true religion, the extirpation of heresy and false opinion, the increase and continuance of divine learning and all kinds of godliness, the knowledge of language, the education of youth in piety virtue discipline and learning, the relief of the poor and destitute, the prosperity of the Church of Christ, and the common good and happiness of his kingdom and subjects, founded and established a College of letters, sciences, philosophy, godliness, and sacred theology, for all time to endure. These are noble objects, and we may look back with honourable pride to the way in which Trinity College has on the whole carried out the intentions of its founder.

The organization of the new College followed closely that outlined in the *Distribucio*. To meet

the expenses already incurred during the Michaelmas term the Court of Augmentations* in January 1547 paid Redman £590 "towards the exhibition of "King's Scholars in Cambridge." This was about one-third of the total intended income of the House, and presumably cleared matters up to 24 December 1546, when the College entered into possession of its endowments. If we may trust the sermon preached in London on 12 December 1550, by Thomas Lever, subsequently master of St John's College, Trinity had reason to regret the death of Henry in January 1547, for the preacher asserted that a substantial part of the intended endowment was appropriated by courtiers in London; I have never investigated what part (if any) of it was thus lost to the College.

The first account-book of the new College covers the civil year 1547, but only certain selected items of income and expenditure appear therein. It shows total receipts of £786. 16*s.* 7*d.* and total payments of £799. 11*s.* 1½*d.* Most of the income is said to have come from the "Tower." I conjecture that rents, etc. were paid to the master who kept the college moneys in the treasury in the Tower, and the bursar in his book accounted only for such portion of it as was handed to him: of other sums

* C. H. Cooper, *Annals of Cambridge*, Cambridge, 1842, vol. I, p. 452.

received or paid on account of the Society, we have no particulars. In most cases the commons (though not the stipends or wages) paid to officers are set out, but up to Lady-Day instead of giving full details there is an entry of £52. 6*s*. 10*d*. paid to fellows and scholars for "the first quarter after the erection, "besides stipends and wages." The account-book for the next year, 1548, is better kept. It shows total receipts of £531. 13*s*. 11½*d*. and total payments of £528. 12*s*. 8½*d*. In the accounts of this year are mentioned a master, fifty graduate fellows (of whom thirteen were bachelors), ten dialectici, forty-two grammarians, and eight bible-clerks. Entries appear of payments for commons to six former members of King's Hall and Michael-House, but of these only three seem to have been in regular residence. An examination of the early account-books allows us to see something of the development of the College, but a description of this would hardly come within the purview of this paper.

CHAPTER II.

THE TUTORIAL SYSTEM.

THE word Tutor is used at Cambridge to describe an officer of a College who stands to his pupils in loco parentis; now-a-days he may, but does not necessarily, give direct instruction to them. The object of this chapter is to describe the development of the office in Trinity College.

Trinity College was founded in 1546 by Henry VIII. It is, however, essential in dealing with its early history to bear in mind that it was founded in a pre-existing* University having well-established rules and customs. Nearly all the original members of Trinity had been educated at Cambridge, they were familiar with its traditions, and even the buildings they occupied were associated with the college life of earlier times. It was intended that the Society should promote the reformed religion and the new learning, but there is no reason to suppose that in establishing it, it was wished or proposed to alter the existing practice about the tuition, guidance, and care of the younger students.

In the system in force in the University shortly

* The history of the University prior to 1546 covers some three centuries and a half, that is, about as long a period as has elapsed since 1546.

before the foundation of Trinity, the students corresponding to our scholars and sizars lived in endowed colleges (of which eight were founded before 1353 and seven between 1440 and 1520), most of those corresponding to our pensioners in unendowed private hostels (of which in the sixteenth century there were twenty-seven and in earlier times possibly a few more), and most of those belonging to religious orders in monasteries or monastic hostels. A student on admission to the University was apprenticed to some master of arts or doctor who directed the lad's studies until he took a master's degree. This graduate was known as the student's "master": in the case of a member of a college we may assume that the master was chosen from among the senior members of the House, though it is doubtful if this was necessarily so in the case of the hostels. The head of a college or hostel was responsible for the conduct and control of the lad in non-scholastic matters, but in colleges in later times this work was assigned to a dean. Thus for practical purposes a tutorial system already existed in the medieval system of apprenticeship and control.

The royal scheme for Trinity College comprised a master, fifteen senior fellows, twenty-five middle fellows, twenty junior fellows (of whom, in 1546, thirteen were undergraduates), and forty grammarian school-boys. In addition to these, there were

servant-students (known as sizars or subsizars), each being attached as gyp to a particular fellow, and receiving education, board, and lodging in lieu of money wages. There is nothing to show whether or not the presence of pensioners was contemplated.

We have a list, apparently complete, of all the intended officers; tutors do not appear among them, though a schoolmaster and usher were provided for the grammarians. Hence it would seem that the relation between an apprenticed undergraduate and his master was regarded as personal, and that the latter was selected and paid by his pupil or pupil's guardian, and not by or through the College—I conjecture that this was the usual medieval practice. The deans are mentioned as officers of the College, and the discipline of the younger members was part of their business, though no doubt a lad's master or tutor assisted in enforcing it. The formal charter of foundation was given by Henry in December 1546, but the grammarians are not mentioned therein.

During the next six years, 1546–1552, three important developments took place. First, the grammar-school side of the College was abandoned, and all boys then in the school were entered as scholars of the House; next, and perhaps consequent on the abolition of the school, a distinction between fellows and scholars was drawn; and finally, following the

growing custom of other colleges, the admission of pensioners was definitely recognized as desirable, thus introducing a class of students below the standing of scholars. Before coming to the subject of tutors it will be well to add a word or two about the pensioners and scholars of these early days.

With the upset of the medieval scheme of education the number of pensioners and fellow-commoners seeking admission to the University greatly decreased, and the reception of a limited number of them in the colleges fairly met the needs of the University. The private hostels were then no longer wanted and being unendowed disappeared. Thus when again, as soon happened, the number of would-be pensioners increased, it was necessary (unless new non-collegiate arrangements were made for their reception in the University) to admit them in larger numbers to the colleges At Trinity a limit was, in theory, placed on the number of pensioners admissible, but not on that of fellow-commoners. A pensioner at Trinity, and I suppose also at other colleges, had to be qualified by learning and morals for admission, and I conceive further that his entry was conditional on his finding a fellow who would receive him. A pensioner or fellow-commoner had no rights, and resided only on such terms and as long as the College or the fellow receiving him willed. I believe that students of this class did not

often stay here for more than three or four years unless in due course they became scholars.

A most important question for the new College was how the supply of scholars and fellows should be provided. In King's Hall vacancies were filled by royal nomination, and boys came into residence as scholars-elect. We do not know what was proposed in 1546, but I think that, as far as entry to the grammar-school was concerned, nomination by the senior fellows was the most likely method to have been contemplated. The abandonment of the school and the enrolment of all its members as scholars of the House must however have raised the question in an acute form, and it was settled in or before 1552 by the establishment of an annual examination for the election of scholars. Probably from the first it was intended that the new fellows should be formally elected and admitted.

The charter of 1546 contains a reference to statutes to be given later by the king. There was considerable delay in preparing these, and the liberty of action thus left to the Society seems to have been used unwisely, for the commissioners of 1549 reported that its state was "much out of "order, governed at large and pleasure for want of "statutes.....the fellows for the most part too "bad."

In November 1552 the College received the long-

expected statutes by which it was to be governed: with their appearance we leave the field of conjecture and come to facts. The foundation as here described included a master, fifty fellows of the standing of master or doctor, and sixty bachelor and undergraduate scholars: provision was also made for student-servants or sizars. Vacancies in the roll of scholars were to be filled by an annual election held at Michaelmas on the result of a two days' examination. Bachelors of arts and those insane or suffering from contagious disease (a curious conjunction) were ineligible: also there could not, at any one time, be more than three scholars from any one county. The regulation that a bachelor was not eligible for election to a scholarship suggests that a candidate might be in residence as an undergraduate, though it does not exclude the candidature of those who were not already members of the House, but the custom (if it ever existed) of electing non-residents had died out before 1560. The admission of pensioners, not exceeding fifty-four in number, was definitely recognized in 1552: of these the master might take as his pupils four, and each fellow one. The pensioner which every fellow might thus receive was in addition to such scholars as had been assigned to him as pupils, but though scholars had tutors, the fellow responsible for a pensioner is not explicitly described as his tutor.

It seems that an important part of the duty of a tutor was to see that all payments due to the college from his pupils were made punctually. Scholars, unlike pensioners, had definite rights.

The following are some of the regulations:

Nemo ex discipulis sine tutore in collegio sit, qui fuerit, expellatur. Pupilli tutoribus pareant, honorem paternum et reverentiam exhibeant, quorum cura consumitur in illis informandis et ad pietatem scientiamque instruendis. Tutores fideliter et diligenter quae docenda sunt suos doceant, quae agenda instruant et admoneant. Omnia pupillorum expensa tutores collegio praestent, et singulis mensibus aes debitum pro se et suis quaestoribus solvant. Quod ni fecerint, tantisper commeatu priventur dum pecunia dissolvatur. Pupillus neque a tutore rejiciatur, neque tutorem suum ubi velit mutet nisi legitima de causa a praeside et senatu probanda; qui fecerit collegio excludatur....In discipulis eligendis praecipua ratio ingenii et inopiae sit, in quibus ut quisque valet maxime ita ceteris proferatur. Eo adjungatur doctrinae studium et mediocris jam profectus, et reliqui temporis spes illum fore ad communem reipublicae posthac idoneum. Horum studium sit ut vitae innocentiam cum doctrinae veritate conjungant, et in veritate rerum inquirendi et honestate persequenda laborent....Sic sint grammaticis et studiis humanitatis instituti ut inquisitiones aulae sustinere et domesticas exercitationes suscipere possint. ...Pensionarii et studiorum socii in collegium recipiantur... provideatur ut neque praesidi plures quam quatuor neque singulis sociis plures uno pensionario sint.

Grave offences were punishable by expulsion, rustication, etc., and those who committed only

"minor offences" were liable to penalties of extreme severity. Thus we read:

> Quicunque in aliqua parte officii sui negligentior fuerit, et aliquem e magistratibus bene admonentem non audiverit, aut insolentem se ostenderit, si ephoebus sit verberibus sin ex ephoebis excesserit decennali victu careat et uterque praeterea poenitentiam declamatione tostetur.

The text is corrupt, but the meaning is clear. A marginal note suggests the obvious correction that decemdiali should be read for decennali. The deans superintended, even if they did not inflict, corporal punishment when it was ordered.

Another code of statutes was drawn up in 1554, but was never sealed, and thus did not become effective. I need not quote the text which, on tutorial matters, does not differ materially from that of 1560. The draft contains a clause to the effect that the master of the College was not to take more than four pensioners as his pupils, a fellow who was a master of arts or of some superior degree was not to take more than two, and no one else was to take a pensioner as a pupil. The word "two" however has been crossed out and "one" substituted. From this it would seem that the question of how many pensioners it was desirable to admit was already a matter of debate.

In 1560 new statutes were granted to the College, and its constitution as then settled remained

practically unaltered till 1861. In this code the foundation is described as including a master, sixty fellows, four chaplains, sixty-two scholars, and thirteen sizars or gyps, namely, three for the master and one for each of the ten senior fellows. Henceforth scholars were elected annually in the spring, from undergraduates already in residence. By a gracious provision, whose disappearance in 1861 I regret, it was ordered that forty of the scholarships should be specifically associated with the name of Henry VIII, twenty with that of queen Mary, and two with that of Thomas Allen as pre-eminent benefactors. Pensioners and subsizars were also admissible to the Society on conditions. If fellow-commoners dined at the high table, as seems likely, they may have been reckoned extra numerum. Every student under the degree of master of arts was required to have a tutor, thus regularizing the position of fellow-commoners, pensioners, sizars, and subsizars as members of the College, and bringing them under the same rule as scholars.

The regulations in point are as follows:

Est ea quidem ineuntis aetatis imbecillitas ut provectiorum consilio et prudentia necessario moderanda sit, et propterea statuimus et volumus ut nemo ex baccalaureis, discipulis, pensionariis, sisatoribus, et subsisatoribus tutore careat: qui autem caruerit, nisi intra quindecim dies unum sibi paraverit, e collegio ejiciatur. Pupilli tutoribus pareant,

honoremque paternum ac reverentiam deferant, quorum studium, labor, et diligentia in illis ad pietatem et scientiam informandis ponitur. Tutores sedulo quae docenda sunt doceant, quaeque etiam agenda instruant admoneantque. Omnia pupillorum expensa tutores collegio praestent, et intra decem dies cujusque mensis finiti aes debitum pro se ac suis omnibus senescallo solvant. Quod ni fecerint, tantisper commeatu priventur dum pecunia a se collegio debita dissolvatur. Cautumque esto ne pupillus quispiam vel stipendium suum a thesaurariis recipiat vel rationem pro se cum eisdem aliquando ineat, sed utrumque per tutorem semper sub poena commeatus menstrui a dicto tutore collegio solvendi fieri volumus....Pensionarios ut studiorum socios in collegium recipiendos statuimus; sitque in illis recipiendis ratio morum ac doctrinae diligenter habita; magistris artium aut superioris gradus unum, baccalaureis autem nullum omnino concedimus. Nemo illorum admittatur nisi a decano seniore et primario lectore examinatus.

In time, serious discrepancies between the statutes and the practice of the College grew up. Some, but not all, of these were removed in 1844, when the statutes were revised. The sentence above quoted "magistris artium aut superioris gradus "unum, baccalaureis autem nullum omnino conce- "dimus" was then struck out.

In 1861 new statutes were given to the College: these contain no mention of pensioners, but merely prescribe that no bachelor or undergraduate shall be without a tutor. The present statutes of 1882 similarly direct that no member of the College in statu pupillari shall be without a tutor.

Except by accident, we have no record before 1635 of the names of the tutors of the various students, but it is probable that at first the master regularly entered some undergraduates as his own pupils: certainly Whitgift did so, and so too did some of his successors. It seems most likely also that by 1560 it was already usual for the master to assign a student to that fellow who was to act as his tutor, though of course regard must always have been paid to the wishes of a parent or guardian in this matter. This remained the ordinary custom for perhaps two hundred years.

Some information on tutorial affairs in the sixteenth century may be gathered from an account-book kept by Whitgift, covering parts of the years 1570 to 1576, and containing statements of the charges he made as tutor: the names of thirty-nine men are given. In the history of Trinity College which I wrote for my pupils some years ago, I published a few of these bills. I give here a few details illustrative of the many matters with which a tutor was then concerned.

The payment made to him as tutor varied in different cases, but 6*s.* 8*d.* a quarter for a sizar, 10*s.* for a pensioner, and 13*s.* 4*d.* for a fellow-commoner were usual sums. In a few cases there are records of an admission-fee to the College or a fee for entering into commons: the normal payment

for this was 15*s.* for a pensioner, and 20*s.* for a fellow-commoner—there is no mention of any such charge in the case of a sizar. The cost of the silly ceremony by which the senior undergraduates initiated a freshman, known as his salting, was charged in the bills, and varied from 8*d.* for a sizar and 1*s.* 4*d.* for a pensioner to 4*s.* for a fellow-commoner. The charge for matriculation appears to have been 4*d.* for a sizar, 1*s.* for a pensioner, and 2*s.* for a fellow-commoner.

Of course the cost of the purchase of books comes in most of the accounts. Aristotle, Plato, Sophocles, and Demosthenes constantly appear among Greek writers, Homer and Xenophon only once; Cicero, Caesar, Sallust, and Lucian occur often among the Latin authors, Livy only once. Euripides and Horace are noticeable by their absence. I have not observed any mathematical books. Works by Seton and Erasmus are frequently mentioned. Among English books we have a prayer-book charged at 1*s.*, a service-book at 1*s.* 8*d.*, a bible at 9*s.*, and a testament at 2*s.* The charge for a bible in Latin was 7*s.* and for a new testament in Greek 2*s.* A Greek grammar cost 1*s.*, 1*s.* 2*d.*, or 1*s.* 4*d.*; a Hebrew grammar 1*s.* which seems cheap. Paper was charged 4*d.* by the quire and 2*s.* 6*d.* by the half-ream: the cost of a bundle of pens and an inkhorn was usually 4*d.* or 6*d.*

Clothes appear to have been expensive, but naturally the cost varied widely according to the status of the student. Apparently at that time the wardrobes of men were fairly extensive: the prices of the various articles are set out in full. I hesitate to distinguish academic gowns from other robes, but the charge of 4*s.* to John Waring, a pensioner, for his gown and square cap, as also the charge of 2*s.* 6*d.* for making a gown and hood for Phillip Harrison, another pensioner, must, I think, be taken to refer to academic costumes. The cost of a surplice to Richard Therald, a sizar, was 4*s.*, but to Henry Gates, a fellow-commoner, was as much as 11*s.* 7*d.*

As to amusements, the richer students seem to have kept or hired horses at considerable cost. Horse-hire to London varied from 4*s.* to 8*s.*; to Lincoln from 3*s.* 6*d.* to 4*s.* 8*d.* Bows and arrows constantly appear in the bills—the price of a bow ranging from 1*s.* 4*d.* to 3*s.* Tennis was another popular amusement of the day. The court stood on the site of the north end of the present library, and the keeper of the court was regarded as a college servant; there are no charges in connection with the bats, balls, or use of the court.

It may be interesting to notice that coals were used regularly as well as wood: they were sold at 1*s.* 3*d.* a sack. Candles were charged at either

3*d.* or 4*d.* a pound. Among miscellaneous things 6*d.* was charged for an hour-glass; 4*d.* for a mouse-trap; 10*d.* for a scabbard for a rapier; and 10*s.* for a lute. A set of singing lessons cost 3*s.* and a set of dancing lessons 6*s.*

Sickness appears to have been common. In general we have no record of the duration of illnesses, and the charges for doctors and chemists varied widely. The charge for plucking out one tooth seems to have been 1*s.* 4*d.*, but for two teeth the dentist reduced his charge to 1*s.* a tooth.

We get another aspect of student and tutorial affairs in the next century (in 1659) contained in a long letter from which I gave extracts in the history of the College to which I have already referred. Robert Creighton, pronounced Crickt-on, of Somersetshire, a Westminster boy and a scholar of the House, was then a candidate for a fellowship. At the time there were in residence a good many zealots, introduced into the Society under presbyterian or Cromwellian auspices, and one of these, a year senior to Creighton, was also a candidate for a fellowship. Just before the election some of the scholars were playing tennis in the college court when the ball by chance struck one of them in the eye. On this Creighton called out "Oh God, Oh God, the scholar's eye is "stroke out," whereon his competitor accused him to the authorities as a profane person who took

God's name in vain; and as confirmation added that he never came to the private prayer meetings of the students. By good luck the master was Wilkins, afterwards bishop of Chester, who owed his appointment more to the fact that he had married Cromwell's sister than to his devotion to the doctrines of the Independents. It is clear that he disapproved of the complaint, but he considered it prudent to summon a meeting of the seniority to hear the case and examine witnesses. Creighton's tutor, Duport (who gave us our large silver salt-cellar), spoke up for his pupil, and thereon the master said that the charge looked like malice, and it did not matter much if Creighton did neglect to go to the private prayer meetings of undergraduates since he never failed to go to chapel and to his tutor's lectures. He then proposed, if we may trust our authority, that the seniority should at once reject the informer and his friends, and elect to the vacant fellowships the accused and his friends, and so it was done. Such were elections then!

It is satisfactory to add that public opinion in the College was against those who trumped up this ridiculous charge, and on the day after the election the following notice was found on the screens. "He that informed against Ds Creighton deserves to "have his breech kickt on." An amusing glimpse of life under the Commonwealth. Note that the tutor

gave lectures to his pupils, and from the tutorial point of view observe the esteem gained by regular attendance thereat.

No obligation to take pupils seems ever to have been imposed on fellows, though a pupil once taken could not be transferred. This, and the fact that scholars were elected only from students already in residence, made it undesirable to retain any rule to the effect that a fellow should not have more than one pensioner as a pupil. Hence in time those who liked tutorial work and did it well were allowed to have more than one pensioner pupil, and gradually the bulk of the entries came to be made under a comparatively few tutors.

The average annual entry of students at Trinity during the years 1551 to 1600 was fifty-one, during the years 1601 to 1650 was fifty, and during the years 1651 to 1700 was thirty-nine. During the years 1701 to 1750, it sank to twenty-seven: this diminution being partly due to the Bentley scandals. During the years 1751 to 1800 the average annual entry was thirty-seven, during the years 1801 to 1850 was one hundred and sixteen, during the years 1851 to 1900 was one hundred and seventy-four, and during the years 1901 to 1913 was one hundred and ninety-nine.

Let us see how the men were divided among the tutors. From April to December 1635, twenty-

eight students were admitted who were distributed among seventeen tutors, of whom eleven had only one pupil and none had more than four pupils. Taking every tenth year thenceforward, we find that in 1645, there were (excluding ten fellows intruded by order of parliament) fifty-seven entries; of these fifty-one were divided among ten tutors. In 1655, there were fifty-three normal entries divided among twelve tutors; in 1665, forty-three entries divided among six tutors; in 1675, forty-nine entries divided among twelve tutors; in 1685, thirty-four entries divided among five tutors; and in 1695, twenty-eight entries divided among four tutors. In 1705, there were twenty-nine entries, of these twenty-eight students were divided among three tutors. In 1715, there were fourteen entries divided among six tutors; in 1725, thirty-four entries divided among twelve tutors; in 1735, twenty-eight entries divided among six tutors; and in 1745, twenty-one entries divided among eight tutors.

In 1755 there were only two fellows acting as tutors, namely S. Whisson and J. Backhouse. Thenceforth there were definite tutorial "sides," each under one tutor or joint tutors, a tutor being appointed to a side when a vacancy occurred; and every admission to the College being made on a designated side. In effect the work of a tutor was now regarded as being of a character which should occupy

a man's whole energies, and it was generally held that a tutor, while he held office, had not, and ought not to have, leisure during term-time for independent work. From 1755 to 1822 there were two sides. In 1822 a third side was created. In 1872 one of the sides (being the lineal successor of Backhouse's side) was divided into two. These four sides are to-day designated in the college office by the letters *A*, *B*, *C*, *D*; side *A* being that created in 1822, sides *B* and *D* being the two made out of the successor of Backhouse's side, and side *C* being the lineal successor of Whisson's side. [In the pre-war days of 1914, side *A* was under Dr Barnes, side *B* under Mr Laurence, side *C* under Mr Whetham, and side *D* under Dr Fletcher.]

Proceeding by decades in the same way as before, the entries on each of the two sides (denoted by *C* and *BD*) which existed from 1755 to 1822 were in 1755, nineteen and ten; in 1765, four and six; in 1775, twenty-one and twenty-four; in 1785, eighteen and twenty-nine; in 1795, twenty-nine and seventeen; in 1805, forty-two and twenty-six; and in 1815, fifty-one and thirty-six. From 1822 to 1872 there were three sides (denoted by *C*, *BD*, *A*): the normal entries on these were in 1825, forty-two, fifty-five, forty-one; in 1835, forty, forty-five, fifty-three; in 1845, fifty, sixty-eight, forty-nine; in 1855, fifty-three, forty-eight, fifty; and in 1865, fifty-eight,

nineteen, sixty. Since 1872 there have been four sides (denoted by *C*, *B*, *D*, *A*) which were made approximately equal: the normal entries on these were in 1875, forty-one, forty, forty-four, forty; in 1885, forty-nine, forty-four, forty-five, forty-eight; in 1895, forty-eight, thirty-eight, fifty, fifty-one; and in 1905, fifty, fifty-three, fifty, fifty-seven.

Until 1755 the number of pupils in residence in any one term assigned to an individual tutor was not large, and a tutor interested in any particular aspect of a subject likely to be studied was generally available: hence it was usually possible for a tutor to give personally the teaching and guidance required by his pupils. There were then no lecture-rooms in College, so probably all instruction was given in the tutor's rooms and was informal in character. With the establishment in 1755 of sides, this system of teaching required modification, and in the course of the latter half of the eighteenth century it became the custom for a tutor to supplement his teaching by the services of another fellow or other fellows. These officers, known as Assistant-Tutors, were appointed and paid by individual tutors; they lectured regularly, took an important part in the life of the Society, and occupied a recognized position.

A marked development of the system of formal lectures is indicated by the erection in 1835 of a

block of four large and four medium-sized lecture-rooms. No other important changes were made for another thirty years, and until 1868 instruction remained normally organized by sides; indeed it was only by arrangement that lectures on one side were open to men on the other sides, though in fairness it must be added that an arrangement for throwing them open was made as a matter of course whenever it seemed desirable. The retention to so late a date of appointments by sides was due to the fact that the finances of the four sides were then kept as separate accounts.

This scheme, clumsy and illogical though it was, might have worked fairly well as long as the great majority of honour men read nothing but mathematics, classics, and perhaps theology, but it was condemned by the fact that the authorities allowed it to be superseded in practice by an elaborate system of private tuition paid for by the individual students. With the introduction of new subjects (like law, history, and various branches of science) and the development of the corresponding triposes, it became necessary to recast the scheme of teaching if adequate college instruction on such subjects was to be provided. The earliest appointment of a college lecturer (as contrasted with an assistant-tutor nominally attached to a particular side) was made in 1868, his lectures being open to all

students of the Society, and his stipend not charged on the funds of a particular side. This was soon followed by the placing of all educational appointments and finance in the hands of the College without regard to sides; and shortly afterwards the lecture-room accommodation was considerably extended.

About this time a further step was taken by throwing most of the advanced lectures open to members of other colleges. Thus in a few years instruction by tutorial sides was replaced by college lectures and class-work, and then this, to a large extent, by teaching organized on a university basis, supplemented by individual and catechetical instruction in college: with this, the custom of using private tuition has largely disappeared. Ultimately the title of assistant-tutor was dropped; the last appointment under that title was made in 1885, but from about 1870 we may say that practically the duties of an assistant-tutor were those of a lecturer. Thenceforth tutors also took their share of lecturing on subjects connected with their own lines of study, and did not confine their instruction to their own pupils, though for a year or two lectures on elementary mathematics and classics to freshmen on each particular side survived as a historic curiosity. These changes led to the existing scheme under which tutorial and tuition duties are separated, and thus the giving of direct instruction to

his pupils is not now necessarily part of the duties of a tutor.

The sequence of tutors on each side has been published, and I am sorely tempted to add various anecdotes on the way in which some of these officers fulfilled their duties, but such additions lie outside the object of this essay.

Of course during this long period there have been bad as well as good tutors, but I think everyone will admit that on the whole the system has worked well. Its special characteristic is a personal relation between the tutor and the pupil, materially strengthened by constant intercourse and by the fact that practically all the correspondence with the parents of the pupil passes through the hands of the tutor: experience shows that the tutorial influence has not been weakened by the fact that in most cases direct instruction is now given by other lecturers.

CHAPTER III.

THE WESTMINSTER SCHOLARS.

THE relations between Trinity College and Westminster School have always been of an intimate character. Under the Elizabethan statutes of the two foundations a limited number of boys from the school were entitled, if duly qualified, to election to scholarships at Trinity, and later an attempt was made to extend the privilege to fellowships. The whole matter is now one of ancient history, but it may be interesting to put on record some of the facts connected with it.

The school at Westminster owes its foundation to queen Elizabeth. Of course the abbey is many centuries older, and in a sense so is the school, for a grammar-school (in addition to the choir-school) had been attached to the medieval monastery, though doubtless it existed only at the pleasure of the monks. When Henry VIII created the diocese of Westminster with the former abbey as its cathedral, he also established a school connected with it. The diocese soon disappeared, and later the church and buildings were given by queen Mary to the Benedictines. The arrangement made

by Mary was in turn annulled by Elizabeth, who, shortly after her succession founded the collegiate Church of St Peter, divided into two branches, one ecclesiastical and the other scholastic, the whole being placed under the rule of the dean and chapter. Thus Elizabeth is rightly designated as the founder of the present school, though a link with the past has been preserved in the fact that the sequence of headmasters dates by custom from 1540. The buildings were divided between the two sides of the College; for the scholastic side, one part of the monastic dormitory was made into a school-room, the granary was turned into a school dormitory, and the boys were allowed the use of the refectory for meals.

The queen interested herself in the school she had established; its connection with particular colleges at the universities was suggested by the precedents of Winchester and Eton, and it was natural that she should desire to associate it closely with the Houses at Cambridge and Oxford which had been founded by her father. There is some reason to think that the details of the arrangement made were due to Bill, the first dean of Westminster, who was at the same time master of Trinity and provost of Eton; a fortunate pluralist!

On 29 March 1560, Elizabeth gave new statutes to Trinity College, Cambridge, and in statute 13,

dealing with the sixty-two scholars of the College, she directed as follows:

> Sumantur autem potissimum et eligantur ex eorum numero, si modo idonei et ceteris pares reperiantur qui Schola Regia Westmonasterii educati...sint....Ex aliis regni partibus ac locis indifferenter ad numerum supplendum qui maxime idonei videbuntur, semper sumantur.

In June 1560, she gave statutes to the Collegiate Church at Westminster, and in statute 6, dealing with the forty scholars of the school, she directed that three scholars from the school should be elected annually to the foundation of Christ Church, Oxford, and three to that of Trinity College, Cambridge. It is said that the queen did not ratify these statutes. Be this as it may, in the following year, on 11 June 1561, she sent to Trinity College letters patent referring to the Westminster statutes as indicating her wishes in the matter, and expressing her desire that the Society should select as many scholars from Westminster as was possible. This then was the position in 1561, and it was recognised these letters were binding and conferred rights on duly qualified Westminster scholars.

Throughout the three centuries of the existence of these rights, candidates usually preferred the Christ Church studentships, which, being tenable under certain conditions for life, were much more valuable than Trinity scholarships, since the latter

ran out in less than seven years. Perhaps too the boys were attracted to Christ Church rather than to Trinity by the fact that there they formed a larger proportion of the whole Society than in Henry's foundation by the Cam. Further a boy elected to Christ Church entered sooner into the emoluments of his studentship than a boy elected to Trinity—the latter not being admitted to his scholarship until the next annual election of scholars which took place in the following spring, usually some six months after he had commenced residence.

There were only forty scholars at Westminster and a provision for the election from them every year of six scholars to the two universities was more than ample. Thus in 1561 one scholar was elected to each university, during each of the six following years, 1562–67, two scholars were elected to each university, in 1568, six scholars were for the first time presented, and each university took three. In 1569 the school again presented three boys for election at Trinity, but the master, Whitgift, refused to elect more than two, alleging that there were not vacancies in the House for more than that number. Thereon the scholar or his friends appealed to Sir William Cecil, the chancellor of the University. Correspondence ensued, but the Society refused to give way on the particular election. On the general question the College

addressed a letter*, dated 3 July 1569, to Cecil entreating him to interpose with the queen to lighten the burden imposed on Trinity by the royal statutes, and asserting that the Westminster scholars took up so many places as to act to the detriment of other and more worthy students. The crown assented to this proposal, and it was agreed that thenceforth three scholars should be chosen every third year, and not necessarily more than two in the other years.

This arrangement lasted but a short time, for a year or two later, perhaps in 1575, Goodman, dean of Westminster, petitioned† the lord treasurer to confirm or re-enact the original statutes whereby three Westminster scholars were to be elected each year to each of the two universities. The petition was granted, and, I conjecture, was the occasion of the letters patent sent by the queen on 7 February 1576, to Trinity College, Cambridge, and Christ Church, Oxford, wherein she repeated and explained her former injunctions. In these letters she stated that Westminster scholars were not to be allowed to remain at the school after attaining the age of eighteen, and in regard to their coming to one of the universities she directed:

'Quamvis cupimus plurimos e nostris Discipulis Westmonasterii ad Academias in dicta Collegia quotannis

* See *Life of Whitgift* by J. Strype, London, 1718, pp. 13, 14 and Appendix, pp. 7, 8.

† *Life of Whitgift* by J. Strype, London, 1718, Appendix, p. 9.

promoveri, tamen ne incertus sit omnino numerus, sex ad minimum, videlicet, tres in Ecclesiam Christi Oxonii et tres in Collegium Trinitatis, singulis annis, si aut tot loca vacua . . . aut tot idonei e nostris Discipulis Westmonasterii reperti fuerint, admitti volumus; Plures autem optamus, si ita praefatis Electoribus commodum videbitur.

In fact, however, the former custom of electing three scholars every third year and two scholars in each of the other years continued until 1588 after which it became usual, though the custom was not invariable, to elect at least three scholars to each university each year. During the forty-seven years from 1561 to 1607 inclusive, one hundred and thirteen scholars in all were elected from Westminster to Trinity, of whom forty became fellows.

In 1603 James I came to the throne. He interested himself in the school and was prepared to intervene in its interests or what he regarded as such. The earliest case of difficulty in the new reign occurred at the election in 1604 when the king directed the master of Trinity, Nevile, to whom in fact he was under some obligations, to take a boy, by name Albert Moreton, as one of the scholars of Trinity*. The boy was ignorant, and Nevile politely but definitely refused to accept him. The matter was not urged further, and though on some occasions later the Trinity electors consented under

* *State Papers*, Domestic, 1604, p. 185.

pressure to alter the order in which candidates were elected, their right to reject on the ground of ignorance was not again disputed. Three years later, the College was faced by a more serious question concerning its connection with Westminster.

In 1607, James I addressed letters patent to Trinity College, in which after referring to the letters patent already mentioned, he ordered them to be strictly observed, and intimated that thereafter the scholars of Trinity should be taken chiefly from Westminster school if duly qualified. He then continued that he observed that the scholars who had been elected to Christ Church were notable for their learning and subsequent distinction, and regretted that this was not so in the case of the scholars elected to Trinity, a fact which he attributed to their want of succession to fellowships and to their leaving the University as soon as they had taken the degree of master. Accordingly he ordered that Westminster scholars at Trinity who had taken the bachelor's degree should, unless deficient in learning or good conduct, be promoted to fellowships in preference to other candidates. He further ordered that any Westminster scholar in the College, who had not been admitted to a fellowship before taking a master's degree, might remain resident an additional two years during which time he should be eligible to a fellowship, subject to lawful exceptions.

The letters are dated 27 June 1607, but it would appear that they were not presented until September of that year.

Deep resentment was felt at this order, for Trinity attached great importance to the desirability of electing as fellows the best candidates, though it was admitted that candidates from places where the House had property had statutable claims for special consideration. The College took immediate steps to protect itself, and in support of its position addressed to the chancellor of the University, the earl of Salisbury, a petition accompanied by a reasoned memorandum. These documents are not dated, but I think may be assigned to the Michaelmas term, 1607.

The petition is briefly to beg the chancellor to assist the College in obtaining a review of the letters patent with the object of maintaining its ancient privileges and former liberties; the letters patent being said to be contrary to the intentions of its founder, and to its statutes*. The wording is humble and courtly.

The memorandum that accompanied the petition is more outspoken. It is long, but it is so interesting that I shall venture to quote from or describe it at

* According to Dean Peacock, royal letters and orders, at variance with college statutes, were binding only if explicitly or tacitly accepted by the Society. That may have been technically correct, but it is very doubtful if Tudor or Stuart sovereigns would have admitted it.

length. I conjecture that it was composed by Nevile. It contains fourteen assertions or arguments to the following effect:

1. It is inconvenient that so large a College as Trinity should be restrained unto a particular School, and it can be easily shown that other Schools have furnished Trinity with students of much better hope and proof than Westminster hath done or is likely to do, for the whole number of Westminster boys who are eligible to both Universities are but forty, and there are seldom more than eight or nine candidates for the six vacancies at the two Universities.

2. To alter or subvert the ancient liberties of one of the chiefest Colleges in Christendom and to divert from the uses intended by his Majesty's Predecessors a foundation like Trinity in order to satisfy private humour or under the pretence of benefitting an ordinary School is a great indignity to his Majesty's Sacred Person, Power, and Prerogative.

3. The suggestion that boys coming to Trinity do not become Fellows, Doctors, Deans, and Bishops as do boys entering Christ Church is untrue, frivolous, and unfair: it is untrue, because, in fact, of the existing sixty Fellows of the College, more than one-sixth have come from Westminster, and at Trinity the custom is to prefer the worthy: it is frivolous, for the fact of a man having once been at school at Westminster is not the cause of his advancement to the position of a Doctor, Dean, or Bishop: and it is unfair, "for although Christ Church in Oxford be a most magnificent "and royal foundation, and hath bred in all ages as learned, "wise, and worthy prelates as the kingdom hath, yet "Trinity College in Cambridge hath had no less royal "founders, and if we fail in our Westminster brood (as "otherwise I hope we do not) either the defect hath been

"in themselves or else (which rather we suppose) it may "be imputed to those good means the other College hath, "being also a Cathedral Church and having Cannons both "richly beneficed and highly dignified which doth enable "them to Doctorships, Deaneries, and Bishopricks—a great "blessing of God that our poor College wanteth."

4. "Howbeit in that kind of fruitfulness we also are not "destitute of God's gracious blessing; for... besides Doctors "in all faculties to the number at the least of sixty, Deans to "the number of eleven, Publick Professors to the number of "ten, the two Archbishops, Canterbury and York, the most "Reverend Fathers Whitgift and Hutton, and seven other "principal Prelates of this kingdom, namely, Fletcher of "London, Still of Bath and Wells, Babington of Worcester, "Redman of Norwich, Rud of St Davids, Bennet of Hereford, "and Gouldesborough of Gloucester, all of them simul et "semel Bishops of this kingdom... are such a demonstrative "instance as we think no other College in either University "can afford the like—and not one of these chosen out of "Westminster School."

5. "It is to be doubted whether there can be the like "success if our Elections out of a private School shall be "indubitate and certain; we rather think there can be no "readier means to make Droanes and Loyterers in Colleges, "nor any worse prejudice or more deadly bane unto learning "and vertue, then when the rewards, and means thereof are "tyed to persons, times, and places, and made regular and "certain."

6. The proposal would do a grave injustice to other students who might be men of great abilities.

7. The proposal would defeat the express wishes of Henry VIII, Edward VI, Mary, and Elizabeth, all of whom are to be reckoned as founders as well as benefactors of Trinity College.

8 and 9. The proposal would be contrary to the existing statutes of the College, and to the oaths taken by the Master and Fellows on admission.

10. Preferences of this character are injurious to the particular School, the College, and the whole University, and a constant source of discord and contention.

11. "It is also against the Policy and common-wealth of "a kingdom to restrain and abridge places and preferments "originally meant, founded, and hitherto with good success "employed for the common benefit of that kingdom to a "private School: for benefits and privileges are to be "amplified and not restrained; publick rewards are not to "be applied to private places, purposes, or respects."

12. Interference with the intentions and directions of previous benefactors is contrary to public policy, and tends to prevent future benefactions.

13. This implies that Nevile had accepted the office of master of Trinity College under promises which rendered it inequitable that the college statutes should, during his tenure of the post, be altered against his wishes, but it is stated that this argument, though noted, is not to be pressed.

14. This raises some technical points, especially as to whether statutes of a College given under the great seal can be varied by letters patent without explicit reference to the clauses altered or repealed.

The memorandum concludes with a request that the College may have liberty to ask the opinion of the Judges on the questions raised, and thus obtain the benefit of the king's "most equal just and princely laws."

The use of the personal pronoun in one or two cases and the reference in the thirteenth paragraph to Nevile suggest that the document was composed by him. I cannot find out anything about the result

of the petition, but I conjecture that nothing came of it. Nevile however was not inclined to let the matter rest, and no doubt the esteem felt for him at court and his personal popularity were of great assistance to the Society in the negotiations that followed.

It was a few months later, in May 1608, at the annual election of scholars at Westminster that Nevile took the next step in defence of the college position. The following account of the election is based on a paper preserved at Westminster:

The Master of Trinity College (Nevile) refused to take the oath which was required, previously to the election, by the Law of the land as well as by the local Statutes. He also refused to elect to his College the three Scholars ordered by the Letters Patent of the Crown. The oath however was taken by the Dean of Westminster (Neile) and the Dean of Christ Church (King), as well as by their assistants, and by the Master of the School (Ireland). The Dean of Westminster then demanded, in writing, that the election should proceed; when the Master of Trinity College referred to some composition by which he stated he would be governed. To this the Dean of Westminster replied, that he knew of no such composition, and that, if it had existed, it was necessarily set aside by the Letters Patent of Queen Elizabeth and of His Majesty; whereon the Master of Trinity College observed, though with much protestation of his loyalty, that he did not allow the validity of the Letters Patent.

The other Electors, however, having agreed to proceed, the nine Scholars who had been examined were called in to hear the Statute read for the election to the two Colleges. The Master of Trinity then said that he had not places

enough vacant in his College. [In fact in April he and the Seniority had filled up all scholarships then vacant and pre-elected men to succeed to scholarships as vacancies occurred.] To this it was replied, that the want of vacancies had been occasioned by pre-elections of supernumerary Scholars, that the words of the Statute were disjunctive, and there was a clause commanding such Scholars to be received if they were fit. The Master of Trinity College did not deny the fitness of the candidates, but still refused to elect. In this wrangling the whole morning was wasted.

At length they went to dinner. After this, a fear having been expressed, that this "distraction" might become troublesome to their friends, "perhaps to His Majesty," and "not "without some obloquy" to themselves, the Master of Trinity College proposed a private settlement, naming October for it. The suggestion was favourably received by the Electors other than the Dean of Westminster. The latter however affirmed, that with his consent less than three Scholars should never be taken by Trinity College and three by Christ Church if the School produced so many fit Scholars: and as to that part of the Letters Patent, which related to the election of Westminster Scholars at Trinity College to Fellowships, he required that they should be taken in preference to others, if their qualifications were equal; stating at the same time, that the clause declaring them eligible to Fellowships two years after their degree of A.M. had arisen solely from the practice of pre-electing so many Fellows, that for three or four years together no election took place; and the Westminster Scholars at Trinity College were driven out to seek a better fortune elsewhere. The Master of Trinity College allowed that the practice of pre-elections was wrong; and it was at length agreed that if this were discontinued, that part of the King's Letters concerning the eligibility of Westminster Scholars two years after their

degree of A.M. should not be urged against the local statute of Trinity College, *De Gradibus Suscipiendis*. Thereupon the Master of Trinity College took for his College as Scholars three candidates, to wit, Hacket, Shirley, and Herbert.

The three scholars so taken obtained fellowships in due course, Hacket became chaplain to James I, Charles I, and later to Charles II, suffered cruel persecution under the commonwealth, and at the restoration was made bishop of Lichfield: the Bishop's Hostel was erected at his cost. An incident in Shirley's career is chronicled below (see p. 223). Herbert was the well-known poet and divine. If the above account is reliable, and there is no reason to doubt its accuracy, the most important question in dispute, namely the preferential right of Westminsters to election to fellowships at Trinity, was left open. Nevile however had no intention to allow the matter to drop, and having made his protest at Westminster, he now secured the good services of his friend and Cambridge contemporary, Richard Bancroft, archbishop of Canterbury, who undertook to act as mediator in drawing up a "friendly and full" settlement of the question.

An agreement, drafted I feel confident by Nevile, was submitted to the archbishop and, after he had made a few alterations, was accepted by the dean and chapter of Westminster. The seniority of Trinity College, on 5 September 1608, passed a

minute that the matter "be referred to our Master "against the 13th of October," and the deed is so dated, but its execution must have been delayed since there is a minute of the seniority, 8 December 1608, ordering that the composition with Westminster should be engrossed and sealed at the audit so as to be delivered before 1 February 1609.

The deed embodying this agreement was made between the dean and chapter of Westminster and Trinity College, and provided that the College should take yearly three scholars from Westminster School to be scholars of the College, and that there should be no pre-elections of supernumerary fellows to the prejudice of the Westminster scholars if deserving of fellowships. In consideration of these definite obligations the dean and chapter of Westminster agreed that the letters patent of 1607 should never be urged against the College by the dean and chapter or the schoolmaster or ushers or scholars of Westminster, and that the College should have such full power to elect fellows as had been previously enjoyed, excepting only the practice of pre-elections. To the deed is appended a statement that it was made with the privity and approbation of the archbishop of Canterbury, the earl of Salisbury (lord high treasurer of England and chancellor of the University of Cambridge), and of the earl of Northampton (the lord privy seal), all of whom signed

it. This conclusion of the affair may be regarded as a personal triumph for Nevile.

The arrangement was submitted to the king who in a letter directed to the College approved it, but required that the Westminster scholars each year should be granted seniority over other scholars of Trinity of their year and not be hindered by pre-elections: he did not however withdraw or rescind the previous letters patent. I have never seen the text of this letter but its contents are indisputable, and there are various subsequent references to it. The obligation to allow this seniority to the Westminster scholars was henceforth recognized by the College as binding on it.

The advisers of Trinity seem to have been doubtful whether it would be admitted that this second letter implied the rescission of the letters of 1607, and since there was every reason to avoid raising the question whether royal letters or mandates could be set aside or modified by private arrangements, it was wise to let matters run on as long as the agreement of 1608 was carried out by the school authorities. There is however a memorandum, ascribed to January 1610 in the State Papers, showing that "the recent grant "by the King for the students of Trinity College, "Cambridge, to be chosen from the Westminster "scholars is prejudicial to the interests of Trinity," which seems to imply that further negotiations took

place. I have not seen the memorandum and know nothing more about this than here appears.

During the sixteen years following this settlement, that is, from 1608 to 1623 inclusive, fifty-eight scholars were elected from Westminster to Trinity, of whom sixteen became fellows.

In 1623–24 a fresh dispute occurred. It would appear that while Trinity carried out its undertaking relating to the election of scholars from Westminster, it again began to pre-elect fellows with the object, it was said, of preventing any claim being made on behalf of the Westminster scholars in residence. Whether this was done in self-protection against unjustifiable claims or was a deliberate breach of the agreement of 1608 we do not know. An appeal to the crown on behalf of the school ensued, and on 7 September 1623, the king sent letters patent to the College as follows:

Trusty and well beloved we greet you well. Being much interested in the prosperity and well-fare of that our College which is both our immediate Foundation and the fairest in all our kingdoms, and furnished, for the most part with the extracions of our own free-school at Westminster, we cannot but be very sensible of any alteration in the government of the same.

Whereas therefore we are given to understand that younger students of that College have of late years been totally disheartened in their studies by a new and unwarrantable device of pre-electing more Fellows than there are places vacant at the time of that Election and the

Scholars of our own School (in whose loyalty and affection we are so much interested from their cradles) strangely discouraged and disgraced by being cast in their seniority behind all the Scholars and Fellows in their several Elections though never so exceeding in learning and education, we straightly will and require you that from this time forward ye do forbear all manner of pre-elections whatsoever as the pest and bane of all learning and succession; and that also you bear that regard and respect to the Scholars of that our own Royal School in giving them in all such elections respect and precedency which we are informed they fully deserve before all other of what country soever. Lastly, whereas we are given to understand that heretofore a corrupt custom hath crept into that our College of turning elections into particular nominations of the Master and the several Seniors which smells altogether of partialitie and corruption we do straightly will and require you the said Master of our College of whom we conceive a very good opinion, to see that hereafter all elections as well of Scholars as of Fellows be done according to the local statutes of your College and carried about with that pluralitie of voices therein required.

What reply (if any) the College made or could make I do not know, but presumably the answer was not satisfactory as these letters were followed by the appointment of royal commissioners to enquire into the Westminster elections. There is extant a letter from the master of Trinity (Richardson) dated 9 June 1624, to one of the commissioners, asking to be excused from attending the usual election of Westminster scholars, on account of

poor health. Probably this was regarded as an impertinence, and he must have been reprimanded since we have a letter dated 26 June signed by the master and six of the senior fellows, deprecating the royal displeasure, offering the most humble submission, promising to obey in anything that his majesty might command, but begging that present compliance might not be drawn into an example against the College. Richardson and James I died in March 1625, and the enquiry seems to have been then dropped.

The election in 1636 was interesting. It is said that among the candidates was Cowley who had already written various poems and a comedy showing distinct ability. The story runs that the boy failed badly in grammar, and the Trinity electors, insisting that this was conclusive, rejected him as a Westminster scholar, but offered him an ordinary scholarship at Trinity, which he accepted. Against this are the fact that he had been entered at Trinity as a pensioner in April, a few weeks before the election at Westminster, and the improbability that the electors would have drawn such a distinction between Westminster and other scholars of the House. Still old-time anecdotes are not to be lightly rejected: at any rate Cowley came into residence in due course and was made a scholar in the same term as the four boys taken from Westminster by the electors, these five

students being the only scholars elected by the College in 1637.

During the seventy-seven years from 1624 to 1700 inclusive, three hundred and fifty-six scholars were elected from Westminster to Trinity, of whom one hundred and twenty-six became fellows. During the fifty years, 1701 to 1750, out of one hundred and eighty-seven Westminster scholars at Trinity sixty-two became fellows; during the fifty years, 1751 to 1800, out of one hundred and eighty, thirty became fellows; and during the fifty-six years, 1801 to 1856, out of one hundred and seventy, four became fellows. Throughout this long period the friendly relations between the College and the school suffered no change.

In 1727 there was a curious echo of the controversy of 1607. A strange suggestion had been made, apparently with the tacit approval of the authorities of Westminster, that new statutes should be given to Trinity constituting the dean and chapter of Westminster Visitors of the College, and it was decided by the advocates of the movement to open the campaign by asking the dean of Westminster to call the attention of the master of Trinity (Bentley), to the "Letters Anno Quinto "Jacobi Primi." Bentley replied on 5 March 1727, denied their validity and argued that even if originally valid, they could not be pressed after more

than a century during which time "they had never "been acted upon": he added that, if antiquated letters were still binding, there were various matters in which he had powers, whose exercise might prove singularly inconvenient to those who had raised the question. This was really conclusive, but further consideration had shown the inherent weakness or folly of the original idea, and the chapter was wise enough to proceed no further with the matter.

Shortly afterwards, probably at the following election at Westminster, Bentley is said to have referred to the dean's communication, and remarked that the authority of the letters of 1607 would doubtless have seemed stronger, at any rate to the dean's predecessor (Atterbury), if not to the chapter, could they have been described as "Anno "Primo Jacobi Tertii"—an irrelevant remark, but it carried a sting, for Atterbury's devotion to the cause of the Pretender was deeply resented by the government.

From an unknown date until the early years of the nineteenth century, Westminster scholars at Trinity were allowed the privilege of wearing academic gowns of a cut different from those of other undergraduates and further distinguished by having on the sleeves a violet button with a silk loop. The gowns of all pensioners in the University were then

black and (except for those worn by Westminsters) cut to a common pattern. The Westminster distinction was discontinued when the present system of different gowns for different Colleges was introduced.

During the first half of the nineteenth century the numbers in the school fell seriously, and well-founded complaints were made about the standard of scholarship attained by the scholars elected to the universities. In 1856, as the result of negotiations, initiated by Whewell, the arrangements with Trinity were completely recast, and it was agreed on 5 December 1856 that the school should abandon the right of Westminster boys to election to scholarships at Trinity, and that in filling up open emoluments in Trinity, former Westminster boys should enjoy no preference. In consideration of this release, the Society undertook to establish at its own cost, exhibitions, not more than three to be awarded each year, for boys elected from the school who were otherwise qualified for admission to the College; every such exhibitioner, if so deserving, to be eligible for a college scholarship tenable with the exhibition. This was approved by the queen in council on 25 June 1857. It was further agreed that the Westminster exhibitioners were to be placed on the same footing as exhibitioners elected by open competition before commencing

residence. The mode of election is settled by the school statutes, but it would seem that the Trinity electors have no right to demand intellectual attainments beyond those required at the time for admission to the College. The exhibitions are not now confined to scholars of the school.

So ends the story of Westminster Scholars at Trinity College, Cambridge. During the two hundred and ninety-six years from 1561 to 1856 inclusive, one thousand and sixty-four scholars had been elected from Westminster to Trinity (or say 3·6 a year), of whom two hundred and seventy-eight (or say one in four) had become fellows. In conclusion I may add that in 1869 in virtue of the powers given by the Public Schools Act, 1868, the dean and chapter of Westminster, the dean of Christ Church, Oxford, and the master of Trinity College, Cambridge, created a new Governing Body in whom the governance of the school has been since vested.

CHAPTER IV.

THE SOCIETY FOR THE PREVENTION OF CRUELTY TO UNDERGRADUATES.

THIS is an account of a famous struggle some eighty years ago between the authorities and the undergraduates of Trinity College on the subject of attendance at chapel. The story is not to the credit of the authorities, but, for what it is worth, here it is.

There is a prelude to it concerned with a controversy in 1834 between Thirlwall, later the statesman-bishop of St David's, and Wordsworth, then master of the House, which raised the question of the advisability of compelling undergraduates to be present at religious services in College. At that time regular attendance at chapel was required—as for centuries previously it had been—from all students as a matter of discipline, and the rule in force on the subject was embodied in a college order of 22 April 1824, as follows:

Agreed by the Master and Seniors that every Undergraduate not having an aegrotat or dormiat do attend Morning Chapel five times at the least in every week, or four times at the least including Sunday; and the same number of times in the Evening, under penalty that the week in which any one shall not have so attended be not

reckoned towards keeping the Term of such Undergraduate —unless such omission be repaired by extra attendance the week following.

Absentees were punished, and those who offended frequently were liable to expulsion.

Until the era of the Reform Bill some regulation like this was accepted as a matter of course, but when, in that period of enquiry, all things were put to the proof, doubts as to its wisdom began to be voiced. In 1834 Thirlwall, then assistant-tutor to Whewell, in an open letter dated 21 May, while advocating the admission of dissenters to the University, lamented the constant repetition in college chapels of a mechanical service, believing the practice to be detrimental to the interests of religion: he further expressed the opinion that attendance at chapel services should be voluntary. He referred to a then recent statement by Wordsworth in which the latter had said "the alternative "is not here between compulsory religion (as it is "called) and any other religion, but between com- "pulsory religion and no religion at all," and on this remarked:

I cannot indeed draw such delicate distinctions as my friend seems to make in this passage; for as the epithet compulsory applied to religion appears to me contradictory, the difference between a compulsory religion and no religion at all is too subtle for my grasp. But if for *religion* we sub-

stitute the word *service*, which would probably better express his meaning, then I should quite agree with him, that, in this case, a voluntary service would soon be changed into no service at all: that is, the persons who are now compelled to attend, if they were left at liberty, would stay away. And this is the very reason why I think it would be better that they should be allowed to do so.

The argument was amplified in a second letter dated 13 June. This was skilful enough as a piece of dialectics though hardly likely to convince opponents.

That an officer of the college should express such views and in this way was regarded by Wordsworth as scandalous, and five days after the publication of the first letter, without asking for any explanation, he, with the consent or approval of Whewell and the two deans (Thorp and Carus), removed Thirlwall from his office of assistant-tutor. This arbitrary act was generally resented in the Society even by those who disagreed with Thirlwall or thought that he had been indiscreet in his advocacy; some too considered the act unstatutable, but Thirlwall refused to appeal to the Visitor, and shortly afterwards left Cambridge on his appointment, in November 1834, by the lord chancellor, to the important living of Kirby-under-dale in Yorkshire.

Two years later, in 1836, while the matter was still a subject of debate, Carus was made senior dean.

He was a kindly man, leader in the University of the school of thought associated with Simeon's name, but, whether rightly or wrongly, was regarded as unsympathetic by those who did not think as he did on religious questions. Carus detested the view taken by Thirlwall, and far from conciliating college opinion, which had been outraged by Wordsworth's action, urged the seniority (a Board consisting of the master and the eight senior resident fellows to which, under the Elizabethan statutes, the government of the College was entrusted) to re-draft the rule of 1824 and make clear or stiffen the penalties for non-obedience. The seniority agreed, and on 7 February 1838, issued the following order:

> Agreed by the Master and Seniors, that all Undergraduate Scholars, and Foundation Sizars do attend Chapel eight times at the least in every week, that is twice on Sunday and once every other day; the Scholars, on pain of losing *ipso facto* their statutable allowance for Commons, and such additions as have since been made by the College in the way of augmentation to the Commons, for every week when there has been a failure of such attendance as is above described; and the Sizars, on pain of incurring *ipso facto* an equivalent deduction in money from their allowances.
>
> Agreed also, that a like attendance be required from all other Undergraduates; and that in case of failure, the Parties so offending be forthwith admonished by the Deans; and if, after such admonition, irregularity be persisted in, notice be sent by the Dean to the Tutor, that a warning from him

also may timely be given: after which, if both these means shall fail in producing regularity, the offender shall be reported by the Dean to the Master (or, in his absence, to the Vice-Master) to receive a formal admonition from him, in the presence of the Dean, a record of which shall be preserved: and finally, in all cases where such formal admonition shall have been incurred three times, the offender shall *ipso facto* be removed from the College, either entirely, or for one or more Terms, according to the circumstances of the case; a record of this sentence being also preserved.

Authority is given to the Deans to grant occasional leave of absence, on special application made previously, but not otherwise. Also on any casual failure of attendance, it is allowed to Deans to accept (in order to make up the deficiency) an equivalent attendance on other days during the same week only; any failure on Sundays to be compensated by attendance twice on other days.

According to college tradition, which came to me from C. W. King, an undergraduate of the time, a deputation of scholars, who remonstrated on the severity of these sanctions, was informed by Carus that attendance at chapel was not so much a duty as a privilege, which was valued the most by those who were oldest and therefore best qualified to form an opinion on the subject—a boomerang argument which obviously was dangerous unless the fellows themselves attended chapel with the regularity desired from undergraduates.

On this rebuff, certain students formed a Society for the Prevention of Cruelty to Undergraduates.

Its founders issued a notice asking whether what was forced on undergraduates was practised by dons; and that facts might speak for themselves, they announced that they would issue marking-sheets showing the attendance week by week of the fellows in chapel. Copies of these marking-sheets were put (surreptitiously) on the college screens, sent to London clubs, and widely circulated. All efforts by the deans to discover the authors or the printer employed failed; I understand, however, that W. J. Conybeare, G. E. L. Cotton, J. S. Howson, C. L. Rose, and C. J. Tindal were its chief promoters, and that the printer was Metcalfe of 9 Trinity Street. Copies of these marking-sheets are now very rare, but a few years ago one came into the market which I was fortunate enough to secure. It is bound in blue calf, stamped with the college arms having as supporters two undergraduates in knee breeches waving their caps, and with the motto *Nemo me impune lacessit.*

The first sheet is for the week ending 17 February 1838, and shows the attendances, morning and evening, of the master and the eighteen fellows then in residence. Each of the two deans attended ten times, but they were in a peculiar position, for it was their duty, as the Society pointed out, to go twice a day and therefore fourteen times in each week. Only one of the other fellows, Perry, later

bishop of Melbourne, complied with the rule imposed on undergraduates, four fellows went only once, and four not at all. To this sheet the Society appended the following note:

Does then this new regulation of the Master and Seniors proceed from any religious motive? Do they practice (*sic*) what they force on the Undergraduates? They are very regular in their attendance in Hall, but why are their places vacant in Chapel?

The next week showed a slight improvement in the attendances. The Society congratulated itself on this, and in some general remarks indicated what it expected from the fellows, copying these from the notices on the subject issued by Carus. It should be said that in the sheets those who were ill or away from Cambridge, were marked with an *aeg* or *abs*, so any such explanation of the absence of the others from chapel was impossible.

In the third week the improvement continued, and three fellows in addition to the master and the deans complied with the rule, but this was the high water-mark of attendance, and after all it did not come to much. The Society expressed its gratification at this, which it was pleased to treat as the result of its efforts, and at the same time issued the following notice:

A prize for general regularity, and good behaviour when in Chapel, has been instituted by the Society, who are as anxious to reward merit as they are to punish immorality.

But whilst they thus wish to instil into the minds of the Fellows those Religious feelings which, owing to a bad education, they may possibly be without, the Society most distinctly declare that they shall not be guided merely by an outward show of religion. It is not, therefore, enough to go merely eight times a week to Chapel, and when there to utter the responses so loud as to attract attention, or otherwise disturb the prayers of Undergraduates. Such conduct will at all times be severely punished....For convenience of those members of Trinity College now residing in London, six copies of this publication are sent weekly to each of the University Clubs there.

In the fourth week, apart from the indefatigable Perry and the two deans, no one came up to the prescribed standard. On this result the Society remarked:

The Society regret much that during the last week great laxity has prevailed among the Fellows in general with regard to their attendance in Chapel. This is the more to be lamented, as they had been for the two previous weeks so much more regular than usual. This irregularity cannot proceed from ill health, for they have been constantly to Hall, although they are not compelled to go there more than five times in each week. The Society, however, still hopes that in the ensuing week they will be able to make a more favourable report both of their attendance in Chapel, as also of their good conduct when there. As was before stated, any Fellow who shall, owing to any wine-party, or other sufficient reason, be prevented from attending, will be excused on sending a note previously to the Secretary of the Society, and his absence will be counted as presence. [The last seven words were a quotation from a note by

Carus.] It is agreed by the Master and Seniors that all Undergraduates do go eight times at least each week! Why then do they not set us a better example?

These publications were widely disseminated and led to the production of a number of epigrams and lampoons which were scattered broadcast in the University. The Society appended to this sheet a note that its members had "*no connexion* "*whatever* with *any* of those abusive and profane "publications which have been so industriously cir- "culated during the last two weeks."

The sheet for the week ending 17 March, announced the success of the movement, though in this return only Carus and Perry came up to the standard. Appended to the sheet were the following notes:

The Society in laying the first list of this month before the public, have much reason to be pleased with the success of the work which they have undertaken, for they have been informed, on very good authority, that the Cruelty System will not be continued more than a week longer, but that the Master and Seniors have determined to come to a new Agreement about Chapels.... If this should be the case, the end which the Society had in view will be accomplished, and the weekly publications will be discontinued, until called again into life by some new act of Cruelty upon the much enduring Undergraduates, but not otherwise. The Fellows have been very irregular during the last week, in their attendance at Chapel; so much so that only two of the whole number in residence have kept the number, which the

Undergraduates are compelled to keep, on pain of being *ipso facto* rusticated, either entirely, or for one or more terms. And yet one Member of Trinity College was really sent away during the past week (who had always been seven times each week before) because he had the courage to object to compulsory attendance at Chapel, especially from those men who had set him such an example!

In the course of the next week a printed notice appeared on the screens reducing the number of compulsory attendances in chapel to two on Sundays and four during the week. The paper, type, and setting look as if this were issued by the authorities. I have, however, seen a contemporary letter in which it is said that this notice was in fact a forgery: the suggestion being that the men were tired of the joke, and invented this way of terminating the episode. I cannot say whether the deans modified their rule, and the question of the genuineness of this notice must be left undecided. It is true that no extant minute of the seniority exists about any new regulation, but the records of the proceedings of that body are so imperfect that no conclusion can be drawn from this.

The Society in publishing its last sheet, namely, that for the week ending 24 March, concluded with the following class list and notes:

The examination of the Fellows is now finished: and in arranging the different classes the Secretary has attached to each person's name his number of marks, in order to do

away with any appearance of favour shewn more to one than another, as is too often the case in other Examinations.

First Class.	
*Carus	72
Perry	66
*Barnes	50

Second Class.	
Heath	42
Wordsworth Senior	38
Thorp	35
Whewell	34
Blakesley	30

* The two gentlemen marked with an asterisk are respectively Senior and Junior Dean, whose duty it is to go twice every day to Chapel.

Third Class.	
Peacock	28
Thompson	19
Brown	17
Dobson	13
Martin	12

Last Class.	
Wordsworth Junior	9
Sedgwick	5
Field	4
Donaldson	3
Burcham	0
Walsh	0

The Prize Medal for regular attendance at chapel and good conduct when there, has been awarded to Mr Perry, who has passed an examination highly creditable to himself and family. He was only 18 marks below the highest number which he could possibly have gained. It is, therefore, to be hoped Mr P. will be more regular and do still better next term. With respect to the two Gentlemen who are not classed, the Secretary need hardly say that he does not envy them their feelings on the present occasion. In consequence of the New Agreement, the Chapel Lists will *ipso facto* be discontinued for the future.

In the above list the master is designated as Wordsworth Senior. The prize was awarded to Perry the future bishop, but instead of the promised medal he was given a bible. This was secured for the College in 1906, and now rests in our library. It is bound in calf, stamped with the arms and

supporters assumed by the Society, and bears the inscription "From the Undergraduates of Trinity "College to the Rev. Charles Perry, M.A., as a "mark of affection and esteem for the good ex- "ample which he set them and the *rest* of the "College by his constant attendance at Chapel." I have been informed that to each of the two fellows who did not attend at all there was sent a small bible with an inscription therein of the Society's hope that its presence among his books might in the future encourage him to perform tasks which he believed to be important even though he found them unpleasant.

The doggerel verses to which I have alluded as appearing in connection with the struggle were, as far as I have seen them, poor stuff as literary productions, and some were highly improper. The author of one of the worst of them was discovered and expelled from the College, 12 March 1838. I possess copies of four or five of these productions, their value consists entirely in giving us stories then current about dons and things academic—stories, I may add, which appear generally to have had no foundation in fact. The best set of verses, supposed to be addressed on Saturday evening by a man to his bedmaker, is a parody of Tennyson's *May Queen*. It begins: "You must mind and call me early—call "me early, d'ye hear? For I in morning chapel to-

"morrow must appear," and on the whole runs easily. There is nothing in these squibs which deserves remembrance or needs any further notice here.

There ends the story, and no comments on it or the actors in it are needed. It may be added as a postscript, that for a long time subsequent to this incident some attendance at chapel was required from all who had no good reason to ask for exemption, and that as time went on the requirements gradually grew less. The question of making attendance at chapel compulsory on those who have not yet fully attained years of discretion is admittedly difficult, and made more so by the fact that while such attendance is approved and rigorously imposed every day of the week at most public boarding schools on lads up to the age of eighteen or nineteen, it is regarded as unthinkable in the case of young graduates of twenty-one or so. Trinity College finally adopted the view advocated by Thirlwall, and to-day attendance at chapel services is voluntary.

CHAPTER V.

THE COLLEGE CHAPEL.

THE College Chapel, as it appears to-day, is described in many of the guide-books which are pressed on the casual traveller in Cambridge. I am not here concerned with the accounts of it there given, for in this paper I intend to deal with little beyond its history and traditions.

It is a matter of common knowledge that the present chapel was built under the auspices of the Tudor queens, Mary and Elizabeth, on the site of the old chapel of King's Hall. Let me begin by tracing briefly the history of these successive buildings, and their connection with college developments.

King's Hall owed its origin to the establishment of scholars in the University of Cambridge by Edward II in 1317, and was put on a permanent footing by Edward III in 1337. The original home of the Society was a large two-storeyed house, built of wood and thatched, bought from Robert de Croyland, and situated on the ground now occupied by the walks and grass plot in front of the chapel. No chapel or oratory was connected with it, and the

Society worshipped in All Saints' church which then stood on the green in Trinity Street facing our present chapel.

In 1375 the College began the erection on the ground to the north and west of its house of a larger building comprising a cloister court with various extensions. The west side of this court, some hundred and twenty feet long, is still standing and faces the bowling green: the other three sides and the extensions have been destroyed. These buildings were of three storeys, built of stone, brick, or rubble, and tiled: they were finished about 1438, and the old mansion of Robert de Croyland was then pulled down. Into the inner quadrangle of this cloister court there projected from the middle of its western face a wooden erection some fifteen feet long by fifteen feet wide, built in 1419–24 over what is now the junior combination room, and containing on its upper floor an oratory which opened on to a gallery over the cloisters on that side of the court. A list of the service-books, plate, copes and other vestments, altar-cloths, curtains, gold embroidery, etc., kept in this oratory in 1479 is given in my booklet of 1917 on King's Hall. The building was small and the Society continued to use All Saints' church for its more important services.

The desirability of having a chapel large enough

for all college purposes was obvious, and in 1464 the Society began the erection of such a building, on ground beyond the eastern extension of the cloister court. This new chapel, which covered part of the site of our present chapel, was about a hundred feet long and thirty feet broad, that is roughly half the length of and the same breadth as the present chapel: it was built of stones, squared and supplied ready for use, which according to Caius came from the large banqueting hall of the Castle then being pulled down and probably by purchase from King's College to whom these materials had been granted. It was wainscotted, and was fitted with stalls and carved woodwork; the high altar, like that of the older oratory, was of wood and the interior walls above the wainscotting were plastered and whitewashed; the sum spent suggests that the fittings were not elaborate. The work was finished in 1499, but probably the chapel was used from 1485 onwards: of course the plate, service-books, etc., were removed to it from the old oratory.

Trinity College, on its foundation in 1546, naturally made use of this chapel, for it was the only one available on the site* of the new College.

* On the site acquired for the College were situated the buildings of King's Hall, Michael-House, Physwick's Hostel, and some private hostels or boarding houses. Members of private hostels used their

It is fairly certain that it was then fitted up with additional seats and probably re-decorated: the provision of a new organ and a new lectern happen to be specifically mentioned.

Edward VI ascended the throne in 1547, and barely had the interior of the chapel of King's Hall been adapted to the needs of the new foundation than the College was required to remove all popish traces from it. The altar and steps were taken down, and a communion table set up, most likely in the middle of the chapel. The books, copes, vestments, and altar ornaments which had come down from old times were sold: they realized no less than £140. 8*s*. 8*d*., and the magnitude of the sum obtained in such unfavourable conditions shows that the services must have been conducted with considerable pomp. There is to-day in the library a standing censer boat, ascribed to the end of the fourteenth century or the early years of the

parish churches. All the students in Physwick's Hostel were members of Gonville Hall, and used the chapel of that Hall. The members of Michael-House used St Michael's church: this House had been founded in 1324 by Hervey de Stanton for a master and six fellows, who if not priests at the time of admission, had to take orders within one year; and later two more fellows, three chaplains, and four bible clerks were added to the foundation, which was intended for secular clergy studying in the University. The church of St Michael was appropriated to it, and rebuilt by its founder for use as its chapel. The fellows had in their House an oratory, and in March 1393, the bishop of Ely granted them leave to build a chapel, but their history and convenience alike made them wish to continue to use St Michael's church as their regular chapel.

fifteenth century, with traces on it of its ancient gilding, but there is no record as to how or when it came to us. King's Hall did in fact own among its chapel vessels a "ship of silver" which probably means a censer boat, and it may be that this is the vessel in question. With this possible (but doubtful) exception all our medieval chapel plate has gone.

When in 1553 Mary succeeded her brother, the Roman religion was restored, and the chapel again adapted to the old forms of worship. Perhaps remonstrance was made by the master, Bill, who had been appointed in 1551 on Redman's death and was a strong Anglican: at any rate he was deprived of his office. The expulsion was dramatic and apparently physical, for as he was sitting in his stall in the chapel two members of the House, Mr Boys and Mr Gray, approached and "removed him...in "a rude and insolent way." Declining any contest he retired to Bedfordshire, and was succeeded as master by Christopherson, the queen's chaplain and confessor.

Mary recognized the interest taken by her father in Trinity and, in furtherance of his design, decided to rebuild the College on a comprehensive plan. She issued orders about this on 24 October 1554, and it was arranged in 1555 that the first large task undertaken in connection with it should be the erection of a new chapel. Preliminary work on this

was commenced in 1556 and it was then expected that the building would be finished by the end of 1557, but by October of that year the walls were only half-way up: delays ensued and ten years elapsed before the building was completed. The old chapel was unroofed in 1561, and cannot, it would seem, have been used after that date: it is possible it was shut up in the course of 1557, but early in that year it was still in use, for the royal commissioners in January 1557 complained of the absence of lights on the altar and of coals to cense the sacrament. During the years from the closing of the old chapel to 1567 it is uncertain whether the services were held in College or in one of the town churches.

It was originally intended that the new chapel should be a hundred and fifty-seven feet long and thirty-three feet broad, the east end being flush with the street frontage of the Great Gate. The roof was to be curved, open, and relieved with fret-work and oak pendants. There was to be an east window, a west window, eleven windows on the south side, and twelve on the north side from which it follows that it was to be a detached building save for its abutment on staircase E in the Great Court. It was designed to contain two rows of stalls made after the pattern of those at King's College, sixty-eight in the upper row with misereres, divided by

pillars, and with double crests above, and a lower row of stalls not so divided. Unfortunately the contractor got into money difficulties and sold much of the timber which had been bought for the intended roof and stalls, causing the work to fall into arrear.

After the accession of Elizabeth, changes in the plans of the new chapel were made, the length being increased to two hundred and five feet, thus making it project beyond the east side of the Great Court. In 1564 the walls of the building were finished and plastered, and the date 1564 cut on the east gable together with the text from the Vulgate, Matthew xxi. 13, *Domus mea domus orationis vocabitur*, which in the authorized version runs: "My house shall be "called the house of prayer" and is followed by the clause "but ye have made it a den of thieves." Wags have sometimes continued the inscription by adding the second clause on the chapel either of Trinity or of St John's as their inclinations led them. The roof, put on in 1565, is of a style earlier than this date, and Willis came to the conclusion that it is the actual roof of the old chapel of King's Hall supplemented by additional timber to fit it for the larger building: I like to think that we still worship under the roof which sheltered our predecessors more than four centuries ago.

In the year last mentioned, 1565, the stones

for the pavement were brought from Croyland Abbey and maybe some are still there. In the next year the interior fittings were taken in hand, and the organ screen erected. In the following year, 1567, the windows were glazed with white glass bearing inscriptions, coats of arms, and heraldic badges such as the fleur-de-lys, portcullis, and rose: the organ (a small instrument) and the pulpit were moved from the old chapel, and the stalls put in. It would seem that the wainscotting and wall-seats in the present antechapel are of this date, and possibly came from King's Hall. Moving from west to east in the completed building there were in succession an antechapel sixty-five feet long, an organ-screen eight feet deep, the chapel seats along some seventy feet, a space of twenty-four feet, the communion table, and a space of thirty-six feet free of encumbrances. The work was finished by Michaelmas, 1567. There is no record of the building having been consecrated.

Mary died in 1558, and on 20 November, the Sunday following the proclamation of Elizabeth, Bill, the former master of the College, preached at St Paul's Cross in London; the next Sunday, his successor Christopherson preached there. Probably the men disliked one another, and certainly took different views of the position. Some scandal was caused, and the upshot of the affair was that

Christopherson was sent to prison, while Bill returned to Cambridge, restored to the mastership.

Bill, a discreet courtier, was a favourite at court, and held, under Elizabeth's favour, the provostship of Eton and the deanery of Westminster together with the mastership of Trinity; it was probably due to his influence that Elizabeth in 1560 issued a commission to procure materials and labour for completing the chapel which had been begun on her sister's initiative. Baker praised his prudence and temper while master, and added that "if he "has shown any frailties or failings here, allow-"ances must be made for difficult times and potent "courtiers that are not easily resisted." In my opinion the services to the College of its first three masters, Redman, Bill, and Christopherson, were of the greatest value, and have hardly received that recognition from posterity which they deserve.

On Bill's death, the crown offered the mastership to Beaumont, a calvinist whose views were more pronounced than Cecil supposed at the time of the appointment. Beaumont sympathized with the puritan party, whose numbers in the University were now rapidly increasing, but did little to guide them or to check their intolerance which constantly offended public opinion.

The description of the windows in the new chapel does not suggest that figures or catholic symbols

appeared thereon, but, none the less, the "malcon-"tents" thought them objectionable and in November 1565, broke "all the windows wherein did "appear superstition." In the same term occurred the famous surplice disturbance*. The puritans objected to the use of the surplice in chapel on Sundays, Saints' days, and their eves, and on a certain "Sunday (in Dr Whitgift's absence), Mr "Cartwright and two of his adherents made three "sermons on one day in the chapel so vehemently "inveighing against the ceremonies of the church "that at evening prayer all the scholars save three "[together with one of the chaplains] (viz. Dr Leg, "Mr West, Whitaker's tutor, and the chaplain) cast "off their surplices as an abominable relic of super-"stition"—a curious illustration of how little the calvinists esteemed the value of academic discipline unless they exercised it themselves. The organization of this demonstration was attributed to Cartwright, their leader in the University and a fellow of the College; it was probably due to the disapproval of his conduct in this and similar matters that shortly afterwards he went out of residence for two or more years.

Beaumont died in 1567 and at his request was buried "with no vain jangling of bells nor any other "popish ceremonies" in the new chapel, his being

* Fuller's *History of Cambridge*, reprint 1840, p. 265. Fuller mistakenly assigned the disturbance to 1566–67 instead of 1565–66.

the first interment in it. He is commemorated by a carving (somewhat difficult to detect) of his face on the tenth principal in the chapel roof reckoned from the east end—it is lettered *R. B. Mr.* He was succeeded by Whitgift and the result of the subsequent bitter struggle between him and the puritans settled the constitution and policy of the University till the middle of the nineteenth century, but the battle was mainly fought in the senate-house and in London, and is not specially connected with our chapel.

Alterations to the organ were made in 1594, and elaborate hangings placed in the organ loft in 1604. Thenceforward repairs and reconstructions of the organ followed one another every few years. The history of the instrument has been published in pamphlet form, and I shall not again refer to its successive enlargements. The west window was blocked up about this time owing to the removal of King Edward's Tower to its present position.

There is an account of college doings in chapel in 1635 in the following memorandum sent to Laud, and endorsed by him as embodying matter which he intended to examine during an intended visit to Cambridge in September 1636.

In Trinity College, they have been long noted to be negligent of the chapel and of prayers in it; the best come

but seldom, and by their example the rest make small account of service. In some tutors' chambers (who have three or four score pupils), the private prayers are longer and louder by far at night than they are at Chapel in the evening. Some fellows are there, who scarce see the inside of the chapel thrice in a year, nor public hall, nor St Mary's Church, and (they say) impugn all.

A quire is there founded for Sundays and holydays, but the quiremen are so negligent and unskilful, that, unless it be an anthem, they often sing the hymns no otherwise than in the common psalmerie tune. And to mend the matter, they have divers dry choristers (as they call them), such as never could and never meane to sing a note, and yet enjoy, and are put in to take the benefit of those places professedly. They have a large chapel, and yet the boyes rows of pews are placed just in the middle of the chapel, before and behind the Communion-table, which some there are about to reform.

They lean, or sit, or kneele at prayers, every one in a several posture as he pleases. At the name of Jesus few will bow, and when the creed is repeated, many of the boyes, by some men's directions, turn towards the west door. Their surplices and song-books, and other furniture for divine service, is very mean. The cloth that lies upon the table not worth 14d. He that executes, steps over the exhortation and begins, *Wherefore I pray and beseech you, &c.* They use no Litany for the most part, but in Lent only, and in Lent only upon Sundays, and when they say it, it is at the Communion-table. They repeat not the Creed after the Gospel, and instead of the *Magnificat* and the *Nunc Dimittis*, they will at pleasure (sometimes when the quiremen are present) sing the 23rd or some other riming Psalm.... They have lately taken advice, and are about mending their chapel, if it holds.

Fellows...(when of the degree of M.A.) and fellow-

commoners, take themselves generally to have a privilege to miss prayers, as well as the public table of the hall. From hence it comes to pass, that so many of that ranke are to be founde at those times, either in taverns and towne-houses, or at some other pleasant imployments, where they please.

Whether all this was true or not we cannot say, but at any rate in the following year, 1636, the College spent a considerable sum on alterations and decorations in the chapel. The communion table was removed to the east end and the ground there raised, a pavement of stone and marble laid down, the walls were panelled, and rich hangings provided. Charles I, with his son the prince of Wales, visited the chapel in March 1642, and was much pleased therewith: we read at this time of candlesticks, tapers, and a crucifix on the altar; other references show that the ritual was high.

The next year 1643 saw a great change, for the parliamentary party secured control of the town and district. The order compelling the use of the surplice on certain days was now rescinded, and under Dowsing the chapel was purged, the altar steps levelled, the altar taken away, and a wooden communion table without rails set up in the middle of the chapel; the organ and hangings were removed; and certain figures, painted on the walls at the east end whitewashed. The zealots did not think the reforms had gone far enough, but

no other changes were forced on the College, and a few months later the Society made a money present "to some of Major Scot's souldiers who "defended the chappell from the rudenesse of the "rest." A few years later, on 12 March 1647, Sir Thomas Fairfax then in command of the district came, and was received "in great state...in the "Chapel, he was presented with a rich bible, and in "the hall with a sumptuous banquet"—a pleasant combination.

At the restoration, the original altar of 1643 was recovered and replaced at the east end, a screen of rich mosaic work erected behind it, and as far as practicable the chapel restored to its former appearance. Doubtless, however, practices continued which to-day would strike us as unseemly, for I notice that in 1665 "it was agreed that Dod have the place of "keeping the dogs out of the chapel."

In the early years of the eighteenth century the condition of the fabric caused anxiety; after only a little more than a century's wear the roof was found to be in a dangerous condition, and a portion of one of the external walls in danger of falling. It was determined to place the building, inside as well as outside, in thorough repair. Work began in 1706 and was nearly thirty years in progress. The fellows and a few friends subscribed a large part of the cost, and the rest was paid out of corporate

income. In the plan adopted, which is associated with the names of Bentley and Cotes, the east window was blocked, and the present stalls, baldachino, organ-screen, and wainscotting erected: the design of the latter is excellent of its kind, though not altogether suited to the architecture of the building. Some of the old stalls are said to have been removed to St Michael's church, and the tradition may be accepted as probable. Later in the century, 1787–88, the roof was painted in white and gold.

The number of residents in College in the early half of this century was small, and probably the chapel was in regular use during most of its restoration. A trivial incident at this time afforded some amusement. Complaints had been made that Bentley—an illustrious scholar, genuinely interested in promoting learning, but as master of Trinity arrogant, unscrupulous, and dishonest—never went to chapel though required to do so by the statutes. This was true enough, and he determined to silence his critics by appearing again. But so long had he been absent that the door of his stall had got fixed and could not be opened till the lock had been wrenched off.

Prof. Hughes has called my attention to some unpublished notes* by a friendly visitor about the

* Since published in the *Proceedings* of the Cambridge Antiquarian Society, 22 May 1916, vol. XX, pp. 114–116.

chapel services on Saturday and Sunday evenings in the fourth decade of the eighteenth century. The writer says that interpolated in the evening prayers were elaborate musical performances sometimes involving two symphonies* and two anthems in which the choir, organ, and six violins took part; he also repeats more than once that the building was crowded [by strangers] and the noise so great that little of the service could be heard. Thus, to quote one instance, under date of 28 May 1738, he writes:

This evening I was at Trinity Colledge Chapple where there was so great a crowd that nothing could be heard of the whole service, I could see the Readers lips go, but, not so much as heare the least sound of his voice, and when Dr Walker read the 2d Leason could I only heare the sound of his voice but not to distinguish one word. There was great difference in the Musick part from what used to be, for the symphony was first by the Organ and then by 6 violins in 3 parts to all which the Organ was the base. After the reading the first and 2nd Lessons, 3 men sang the [blank] to which the Choire was the Corus. Before the Prayer for the King there was another Symphony by the Organ, & Violins, and the Anthem was Sung by one man, to which the choir was likewise the chorus.

Throughout most of the eighteenth century, a good many of the fellows resident in Cambridge held livings in the vicinity. They were accustomed to ride out on Sunday to their cures, hold services,

* When I first came into residence a survival of this interpolated symphony existed in a long organ solo which preceded the anthem.

and return home to a comfortable supper the same evening, but in general neglected their parishes during the rest of the week. Thus if a parishioner died, the funeral was deferred till the following Sunday; and if a marriage-service was to be held in the village, it had to wait for a free Sunday. In these circumstances the bride and bridegroom often settled the matter by coming into Cambridge for the ceremony, and during the first half of this century our chapel was constantly borrowed for such marriage services; after the Marriage Act of 26 George II, cap. 33, this use of it became illegal unless a special license were obtained. Since that Act, it has been used only once for such a purpose, namely, for the marriage of Miss Butler on 18 December 1901.

Coming to the nineteenth century, we have numerous notes about the chapel and the services. At the beginning of this period the author of *Alma Mater* (J. M. F. Wright, who commenced residence in 1817) gives an unfavourable account of the services, saying that they were gabbled through as fast as possible amid a great deal of talking. The first part of this statement may be correct, but as to the second probably conversation was rare, and such as took place, though not condemned by public opinion, was subdued and was held only in recesses, one of which was known as iniquity corner. In fact,

we may take it that the vast majority of the undergraduates acted as gentlemen though they attended chapel reluctantly and merely as a matter of discipline. Attendance was required at seven o'clock in the morning, not a convenient hour, albeit considerably later than that usual in Tudor times.

In 1831 the fabric was again thoroughly repaired, the roof redecorated, certain stalls elevated, desks at the east end constructed, and a new scheme of lighting by candelabra introduced. A few years later, in 1838, the Society for the Prevention of Cruelty to Undergraduates concerned themselves with marking the attendance of fellows in chapel. That incident I have described elsewhere.

In 1867–75 the building was again thoroughly overhauled, the south side faced with stone, a porch, a new vestry, and a choir-room built, the organ screen moved a few feet westward, the walls and roof painted, gilding used freely on the panelling, the windows filled with stained glass, backed benches and kneeling stools introduced for undergraduates, and the building lighted with gas. During part of the time occupied by this restoration, the College used St Michael's church as its chapel.

According to the scheme of decoration, adopted on the advice of Lightfoot and Westcott, if we proceed eastwards up the chapel we are supposed to note, in order, the frescoes on the walls (which

represent old testament heroes and teachers) and paintings on the roof (which illustrate the Benedicite), leading up through Jewish history to the birth of Christ, and then, returning westward, to have suggested to us, by the successive windows, the historical development of Christianity and the growth of learning particularly in the University and College. A man might worship many years in the chapel before he discovered this design.

The panels in the sacrarium are replaced by intarsia work in which all the woods used are of their natural colours. The sixteenth-century silver cross on the communion table came from Spain. The wrought-iron gas standards here and through the chapel are also worthy of note; fortunately they were allowed to remain when the electric light was introduced. All this, as well as the scheme of decoration of the antechapel, is described in guide-books with more or less accuracy.

Probably the services were never rendered more effectively than in the years following this restoration. Attendance on Sunday evening was required unless absentees could urge conscientious or other good reasons for exemption, but a large proportion of those who might have obtained exemption did, in fact, take part in the Sunday services. More benches were placed in the chapel than are there now, and the building, with every seat occupied and

everyone (save a few privileged visitors) in a surplice, presented a most impressive scene. Electric light was introduced in 1893, and has added much to the comfort of congregations in winter evenings.

In former days members of the Society who died in College were not infrequently buried in the chapel—a shocking thing to permit in a building in constant use, though sanctioned by the custom of many centuries. There are a good many tombstones scattered over the floor, and copies of all the inscriptions have been published. I wonder how many members of the Society know that among those here buried is one woman, bearing the strange Christian name of Elismar. The last interment in the chapel took place in October 1886, and further burials are now forbidden unless sanctioned by the Home Office.

The building has always been used for various secular purposes, such as elections to scholarships and fellowships; the admission of scholars, fellows, and officers; the affixing of the College seal to documents, and the delivery of declamations by students. Within recent years lectures in the antechapel and an oration in the chapel have been delivered. I believe the view that a church or chapel is intended only for the performance of religious services is modern and unwarranted by history: at any rate our records give no authority for it.

CHAPTER VI.

SOME COLLEGE TREASURES.

Those who live among beautiful surroundings and in constant touch with works of art are often apt to take their privileges for granted. Members of Trinity are proud of the buildings of the College and the grounds in which they are placed, and most of us know something of their history and characteristic features. But with our art treasures there is less general acquaintance, and so perhaps it may not be out of place to jot down a few notes on some of them—chiefly pictures and plate—in which I take pleasure.

Of the contents of the library I say nothing, for a volume would be needed to describe them even briefly. The illuminated manuscripts and the early printed books attract most attention, but there are numerous other subjects in which the library must be ranked among the most important in Great Britain. I have often been told by undergraduates that they have never been in the building except once when they signed the Admission Book. That is true enough of some men, but those who are interested in rare and famous books and yet never visit the library neglect exceptional opportunities.

Of oil portraits—in all nearly two hundred—of former members of the College, we own a valuable collection, and they illustrate in a remarkable way how many distinguished men have been educated here. Identification is easy as labels are placed on most of the pictures. Unfortunately we have no gallery in which they can be shown. Some are put in the hall, some in the master's lodge, some in the combination room, and some in the library, lecture-rooms, etc. Those in the lodge are set off well, but the others are not hung to advantage.

About twenty-five years ago a proposal was made to raise subscriptions for an art gallery to be built along the edge of the river starting from the present north end of the library and extending over the land now occupied by the master's stables and the end of his garden. At that time the proposal did not receive much favour, but now I sometimes wonder if we were wise in putting the plan on one side. Certainly we have more canvasses than we can exhibit satisfactorily. The hall, too, would look a more dignified apartment if the pictures, except for one or two on the dais, were taken away: recently their temporary removal was necessitated by repairs to the woodwork, and the improvement in the appearance of the room was noticeable. The general effect of such a clearance may be judged by a visit to the hall of the Middle

Temple in London. The dimensions of the body of that hall are the same as ours, but instead of pictures on the side walls, each small oak panel bears an armorial shield: these harmonise well with the architectural lines of the building. Where, as is the case with our neighbours at St John's, the panelling is low and there is above it a big stretch of stone or painted wall, pictures add to the effect, but this is not the case where the panelling is high.

Of all our pictures I suppose the one which attracts most attention is that of Henry VIII which hangs over the dais at the north end of the hall: it was given us by Robert Beaumont, who held the mastership from 1561 to 1567. The artist was Hans Eworth, a Dutchman who lived in London, circ. 1543–75, and worked with or under the influence of Antonio Moro: the portrait was taken from or founded on that of the king in the fresco painted by Holbein in 1537 on a wall of the privy chamber in Whitehall palace. This fresco, which was destroyed in the fire of 1698 and till then deservedly treated as one of the art treasures of London, contained portraits of Henry VII and Henry VIII with their queens, Elizabeth of York and Jane Seymour. Holbein's studies for the heads of the two kings have been preserved, and are at Chatsworth and Munich. Most of the extant portraits of Henry VIII are copied from or founded on this fresco. Signs

of deterioration in the fresco were noticeable in the reign of Charles II, and by his orders it was copied by Remée, a French painter then resident in London. The original fresco was on each side of and above a fireplace or window. Instead of depicting this, the artist represented this space as occupied by a pedestal containing an inscription: his delineation of the faces of the sovereigns is poor, but he has preserved Holbein's general design. Two copies of the reproduction are extant, one of which is in the royal collection and the other at Petworth.

Hardly less notable than the presentation of our founder, and far more valuable, is the charming portrait by Joshua Reynolds of the duke of Gloucester (1776–1834) as a boy: the duke was a cousin of George III and afterwards chancellor of the University. Reynolds wrote in his diary that the boy sat for his portrait in March 1780 when he was four years old, and that the finished picture was delivered in January 1788—the charge for it being a hundred guineas. Horace Walpole praised it, but thought it "washy," an opinion not shared by modern critics who esteem it one of Reynolds's masterpieces. The picture was left to the College in 1843 by the will of the duke's sister, the Princess Sophia, with a request that it should be hung in the hall. The legacy was due to the good offices of a freshman of the time—the Hon. Douglas Gordon,

son of George, fourth earl of Aberdeen. He described the circumstances attending the gift as follows:

> When I went up to Trinity in 1842, I used to see a great deal of the princess...[I was then] a freshman full of admiration for my College of which I used to boast. One day the old princess shewed me the picture,...and asked if I thought it would look well in the Hall. On my saying what a boon it would be, she very graciously said "You can tell Mr Whewell that I will leave it to the College "through you, and I hope you will see this picture placed in "a good position." At her death I took it down to Trinity where I was still an undergraduate.

The portrait of queen Mary on the other side of the dais is a Spanish copy of Antonio Moro's famous picture which hangs in Madrid. The original is said to have been given to Philip after his engagement to her; it presents her as a woman of strong character but far from beautiful. When the marriage took place, it was unkindly said by a Spanish courtier that whatever were the faults of his master, it must at least be admitted that he recognized the obligation of a gentleman to keep his word.

Of other pictures in the hall those of Tennyson (1809–92) painted in 1890 by G. F. Watts, of the earl of Essex (1566–1601) painted in 1590, of Isaac Newton (1642–1727) painted in 1725 by John Vanderbank, and of Francis Bacon (1561–1626) copied from Van Somer's portrait in Gray's Inn are

specially noticeable. Newton and Barrow (together with Pearson who is mentioned below) played a leading part in the intellectual life in the University towards the close of the seventeenth century, but I need not talk here about this. Barrow, who was a mathematician and divine, had a ready wit. When, previous to his admission to holy orders, he was examined on his faith, the dialogue is said to have been as follows:—Chaplain: *Quid est fides?* Barrow: *Quod non vides.* Chaplain: *Quid est spes?* Barrow: *Magna res.* Chaplain: *Quid est caritas?* Barrow: *Magna raritas.* On which his questioner retired in dudgeon, and reported that there was a candidate for ordination who would only give him "rhyming "answers to moral questions": but the bishop had the sense to recognize that truths can be expressed in rhyme as well as in prose, and Barrow was ordained.

A very pleasing picture is that reputed to be of Byron: this looks like a Raeburn, though it is ascribed to Thomas Lawrence: its history is doubtful, but the absence of any peculiarity in the ear is *prima facie* evidence that it is not of Byron. Another striking portrait is that of W. H. Thompson (1810–1886) painted in 1881 by Hubert von Herkomer. When Thompson saw the completed portrait of himself, he is said to have remarked, "Do I really "look as if I held the world so cheap" and in a print of it in the house of one of my friends, this is inscribed

on the frame. I ought also to call attention to the window portrait of Richard, duke of York (1411–60), the father of Edward IV and Richard III, which probably comes to us from King's Hall.

Among other paintings, which at present hang on the hall panelling, are portraits of the following famous members of our College:—Edward White Benson (1829–96) archbishop of Canterbury, Isaac Hawkins Browne (1706–60), Arthur Cayley (1821–95), the earl of Derby (1826–93), Michael Foster (1836–1907), Francis Galton (1822–1911), the earl of Halifax (1661–1715), Fenton John Anthony Hort (1828–92), Richard Claverhouse Jebb (1841–1905), Joseph Joachim (1831–1907) the musician, Thomas Jones (1756–1807), Joseph Barber Lightfoot (1828–89) bishop of Durham, Frederick Denison Maurice (1805–72), James Clerk Maxwell (1831–79), viscount Melbourne (1779–1849), Matthew Raine (1760–1811), Adam Sedgwick (1785–1873), Henry Sidgwick (1838–1900), Charles John Vaughan (1816–97), Brooke Foss Westcott (1825–1901) bishop of Durham, John Westlake (1828–1908), and William Whewell (1794–1866).

Of these, Raine, Jones, Halifax and Hawkins Browne lived in the eighteenth century. The last-named is known to fame through having caused a change in the family reigning in the two Sicilies. In fact, coming to Naples in his travels he danced

at a court ceremony "with such inconceivable ala-"crity and vigour" as to provoke universal amusement and amazement: in particular the queen's laughter was so immoderate that a miscarriage ensued. On such events may the histories of dynasties and empires turn! He is described on this occasion as pirouetting in a "dress of volcano silk "with lava buttons": perhaps it is in this costume that he is depicted on our walls. Having related this anecdote I must in fairness add that he was a poet of considerable ability, a good talker in an age when the standard of conversation was high, and an excellent judge of wine. Most of the portraits are, however, of celebrities of the Victorian age. Of these, Melbourne and Derby were politicians; Benson, Hort, Lightfoot, Vaughan, and Westcott represent the church; Westlake was a lawyer; Jebb a scholar; Maurice and Sidgwick represent ethical philosophy; while Cayley, Foster, Galton, Maxwell, Sedgwick, and Whewell, were men of science.

Among the canvasses above the panelling are portraits of Richard Bentley (1662–1742) the scholar, Edward Coke (1549–1634) the lord chief justice, Cowley (1618–67) the poet, John Dryden (1631–1701) the poet, the earl of Macclesfield (1666–1732), John Pearson (1613–86) bishop of Chester, Robert Smith (1689–1768) the mathematician, and John Wilkins (1614–72) bishop of Chester. Wilkins is

now almost unknown but he wrote some interesting books, notably one on the ciphers employed in the civil war of the seventeenth century. Another work of his on the possibility of a journey to the moon, provoked the duchess of Newcastle to ask him where she could find a place to bait if she tried the journey: "Madam," said he, "of all the people in the world "I least expected that question from you, who have "built so many castles in the air that you may lie "every night in one of your own."

The pictures in the large combination room of Isaac Newton by Thomas Murray, and of Matthew Prior (1664–1721) by Godfrey Kneller are good: the former came to us from a descendant (Mrs Ring) of Newton's favourite niece, and its history is given in a letter from Charles Simeon to Mansel, master of the College at the time of the gift. The other canvasses are too big for a private apartment, but the portraits of the "proud" duke of Somerset (1662–1748) by Nathaniel Dance, the marquess of Granby (1721–70) by Joshua Reynolds, the duke of Gloucester by John Opie, the marquess of Camden (1759–1840) by Thomas Lawrence, the duke of Grafton (1760–1844) also by Lawrence, and the duke of Sussex (1773–1843) by James Lonsdale, are of some repute: to these there was added in 1915 a portrait of Arthur J. Balfour by P. A. Laszlö de Lombros.

Of the peers mentioned above the names of Granby and Somerset are still well known. Granby fought in the Culloden campaign, was colonel of the blues (horse guards) at Minden, 1759; commander of the British contingent in the campaigns of 1760, 1761, and 1762; and in 1766 became commander-in-chief of the army. Delighting in danger, which even when in supreme command he deliberately sought, brave to a fault, an excellent cavalry leader, rich and lavishly generous, he was the idol of the public, and witnesses to his popularity remain in the numerous public-houses scattered far and wide over England which bear his name and arms. Somerset was of a very different type, being a stupid man whose power was chiefly derived from his enormous landed possessions. To the Somerset properties he added, by his marriage with the sole heiress of the earls of Northumberland, the great estates of the Percies. He held the chancellorship of the University for the extraordinary term of sixty years. His title of the "proud duke" commemorates only his arrogance, and was derived from the fact that even to speak to anyone in a menial position was regarded by him as a condescension. His servants were trained to understand his wishes by signs, and numerous footmen surrounded him when in the streets so as to avoid the risk that any people of the lower classes should approach or address him.

Perhaps the best known of the stories of his pretensions refers to his remark to his second wife who once called his attention to something by touching him with her fan (or according to another version kissed him without asking his leave), "Madam," said he, drawing himself apart, "my "first wife never dared to take such a liberty, and "she was a Percy." As another illustration of his character I may add that he deprived one of his daughters of £20,000 because she had sat down in his presence without asking his leave.

In the lodge there are numerous portraits of former masters of the College, and obviously this is the proper place for such a collection. It is not complete, twelve past masters being unrepresented, but portraits of two of these (namely Wilkins and Pearson) hang in the hall. The most notable picture in this series is that of Nevile, which is properly given the place of honour over the mantelpiece in the dining room which he built. He holds a paper in his right hand, and I like to think that this is intended to suggest the letter which Elizabeth on her death-bed entrusted to him to take to Scotland, informing James VI of that kingdom that she designated him as her successor. In this room too are portraits of Porson and Thompson with whose memories so many excellent academic stories are associated, but I must not linger over these. In

the drawing room the most striking portraits are those of queen Elizabeth by Mark Gerrard, the duke of Gloucester (1776–1834) in his undergraduate robes by George Romney, and queen Mary probably by Hans Eworth. The painted panels in the entrance hall often escape attention, but are worth looking at, especially in the case of the portraits of Edward III, Henry VII, Elizabeth of York, Mary of Scotland, Edward VI, and queen Mary. The collection of portraits, formed by Dr Butler, of Trinity men who have held judicial appointments is also interesting, but is not generally accessible to visitors.

The pictures in the lecture-rooms and on the walls of the staircase leading to them form a sort of overflow collection, and though of unequal merit, a few are worth attention. There are also some pictures of merit in the library among which I note in particular portraits of Tennyson and Lightfoot.

The engravings of former members of the College placed in the small combination room will repay study. There are at present between one hundred and fifty and two hundred here, but there are many more in portfolios in the library. Several of these have been acquired in recent years through the generosity and knowledge of John Charrington.

The painted glass in the hall shows numerous coats of arms, and anyone acquainted with heraldry

will find here a rich field of study. The windows could have been filled over and over again with the arms of former famous members of the College, but the matter has been managed in a haphazard way, and many distinguished sons of the House are unrepresented. In spite of some bad glass the collection is interesting. Perhaps however any further account of it here would be more technical than would be justified in a paper like this. Of other glass in the College, the windows in the chapel are typical of the art of 1870, and are only moderately satisfactory. The window at the south end of the library, executed in 1775, was made by Peckitt of York, after a design by Cipriani: it illustrates some curious points in the history of the art of stained glass, but the design is impossible, and the scheme of colour atrocious.

Sculpture, unless it is absolutely first rate, does not represent a man as well as portraiture. The number of pieces of statuary of the first class in Great Britain is small, and in the possession of such pieces the College is extraordinarily fortunate. The statue of Newton, with its proud inscription "New-"ton qui genus humanum ingenio superavit," in the antechapel by Roubiliac—"the marble index "of a mind for ever voyaging through strange "seas of thought alone"—is of the highest merit. It was described by Chantrey as "the noblest of

"English statues," and I have never seen any modern piece of statuary anywhere which can be ranked superior to it: the man lives and almost moves. Thorwaldsen's statue of Byron, rejected by the authorities of Westminster Abbey on account of his alleged atheistical opinions, which stands in the library, and that of Bacon in the antechapel may also be reckoned among examples of first-class statuary. Of these three pieces two are by foreigners. There are also in the antechapel statues of Barrow, Macaulay, Whewell, and Tennyson, and in the library a large number of busts. The statues of Edward III on the clock tower, of Henry VIII, James I, Anne of Denmark, and Prince Charles on the great gate, and of queen Elizabeth on the queen's gate are interesting, though not to be reckoned as works of art.

Old Silver Plate has a peculiar beauty. We have some fine specimens though they are fewer and later than from our history we should expect. Most of the pieces are kept in the butteries, and can be seen by visitors. Twice a year anyone entering the hall will see the junior bursar there with all the plate spread before him checking it by his lists, a pretty spectacle which always suggests to me the picture of the king "in his counting house "counting out his money," and formerly in "May-week" typical pieces were set out on show in the hall.

We have a catalogue of the plate—a large and valuable collection—owned by King's Hall in the fifteenth century, and we may reasonably suppose that this, as well as the plate belonging to Michael-House, came in due course to us; all this has gone with the possible, but doubtful, exception of a censer boat now in the library. We know also that some plate was given us in Tudor and early Stuart times: of this, only five pieces remained to us at the restoration. I take it however that until well into the eighteenth century people were accustomed to regard plate, other than pieces of historic interest, as a convenient way of keeping portable wealth in a form which could be easily turned into coin, and its dispersion in times of emergency when money was wanted is not surprising.

It was customary for noblemen and fellow-commoners to present plate to the House when they completed their academic career: their caution-money being commonly employed for or towards the purpose. After the restoration, thanks to this graceful practice, our possessions of this kind grew rapidly. Unfortunately a good many of our pieces were lost through two burglaries, one in 1795 and the other in 1798; for instance, no less than fifty-five drinking cups some of great beauty were then taken. During the eighteenth century, in colleges and throughout the country, large numbers of

"standing pieces" of plate were melted down, and the metal used to make spoons and forks; this accounts for the disappearance of some of our treasures of an earlier date. Until 1870 new pieces continued to be added in large numbers: in that year the College abolished the general admission of noblemen and fellow-commoners, holding that distinctions of rank were undesirable in academic life; and since then our collection has increased only by special gifts or by purchase.

Of our pre-commonwealth plate the oldest pieces are two silver-gilt flagons, dated 1607–08, given us in 1636 by John and Bernard Stuart, sons of the duke of Lennox, then about sixteen and fourteen years old. There is in the small combination room a charming print of Vandyke's portrait of the brothers: both boys were killed during the Civil War, John at Edgehill and Bernard at Rowton Heath. Whistles are placed in the handles of these flagons, so they must have been originally intended for secular use, but they have been included, as far back as our records go, among the communion plate: perhaps the spouts were added when the vessels were placed in the chapel. Our next earliest piece is the handsome cup, dated 1615–16, given us by Nevile probably in 1615: it was originally silver-gilt. The fourth of these pieces is a bursarial rose-water basin and ewer dated 1635–36. We owe it to Ambrose

Aykerod who was bursar in that year: his arms are engraved on the cup, and the inscriptions on it refer to vows and pledges by him which are now inexplicable. The only other early piece which survived the Civil War was a cup given by John Clarkson between 1610 and 1620 and known from its inscription "Pauper Johannes Dictus Cognomine "Clarkson Hunc Cyathum Dono Gratuito Dedit" as the "Pauper Joan Pot": this was stolen in 1798. Clarkson had matriculated as a sizar in 1553, obtained a scholarship in due course, and graduated B.A. in 1560.

Apart from the four pieces mentioned above, the most striking objects in our collection are the rose-water basins and ewers, the Duport standing salt, the standing or loving cups, the tankards, and the punch-bowls.

We have several notable rose-water basins and ewers. The earliest of these is the set given by the earl of Kent in 1662 to commemorate the passing of the Act of Uniformity. The date is given by a quaint double chronogram: and the central inscription Νιψον ανομηματα μη μοναν οψιν reads alike forwards and backwards. Another beautiful set is that given by the duke of Buckingham in 1671, the circumference of the basin being over seven feet. The visitor should also notice a set of 1740 bequeathed by David Humphrey, and a set of 1748

given by William John Bankes. Another set consists of a basin of 1716 given by John Bennet, with a graceful ewer probably made about 1675. This ewer must have been originally a "standing cup" since a whistle is placed in the handle, but a spout was added between 1789 and 1810 with the intention of turning it into a flagon: on it are engraved the Trinity and Westminster arms, and in an early catalogue it is called the Busby cup: its donor is unknown.

There is a curious custom at the high table connected with these dishes. At the end of dinner on ordinary nights, before grace is said, a rose-water dish with an empty ewer is placed before the fellow sitting at the head of each table. I conjecture that this dates from a time when napkins and forks were unknown, and diners were accustomed to rinse their hands in water before rising from the table. Now the appearance of the empty ewer is only a sign that dinner is over. At feasts the ewer contains rose-water which is poured into the dish and passed round the table.

We have a fine specimen of a standing salt in a piece associated with the name of James Duport. Its breadth is nearly ten inches, and its height, without the handles, seven inches. It was these massive salts, and not "trencher salts," that were originally used to divide the company into those

that sat above and below the salt; and in the middle ages the standing salt was generally the most valued single piece in the house and the chief ornament on the table. The medieval specimens usually have a cover to protect the salt, and the handles in specimens like ours are said to have been introduced for a similar reason, as a napkin can be twisted round them so as to cover the salt, and thus save it from dust. Our specimen bears the inscription εχετε εν εαυτοις άλας και ειρηνευετε εν αλληλοις, together with a statement that it was given by Duport. Probably his gift was made in 1665, when he left the College on his appointment as master of Magdalene. The piece, however, bears the hall-mark 1733–34; here, and in some other cases, it would seem that the original piece was exchanged for a new one, perhaps when repairs were required, and it was the custom in such circumstances to engrave the old inscription on the new piece of plate.

In spite of our losses at the end of the eighteenth century some fine drinking cups and covers still remain in our possession. Notable among these is one of 1691–92 given by Charles and George Firebrace, one of 1697–98 given by Henry Boyle, and one of 1711–12 given by John Verney. We have also a cup and cover of 1726 given by the earl of Sandwich, another of 1729 given by Samuel Husbands,

another of 1763 given by John Damer, another of 1771 given by George Augustus Henry Cavendish, another of 1776 given by William Greaves, and another of 1780 given by the earl of Mexborough. To these I may add the Lyndhurst silver-gilt cup and cover of 1876–77 given by Sir Theodore Martin. All these are fine specimens of silversmith's work, and can be used at feasts as loving cups, with the ceremonial customary to such drinking.

The tankards with lids form another striking group of plate, but the larger ones which contain three quarts or more must be regarded as being decorative rather than useful. Conspicuous among these pieces is one, probably made about 1670, given by Thomas Taylor, one of 1698–99 given by Peter Pheasaunt, one of 1699–1700 given by Thomas Alston, one of 1700–01 given by Thomas Bellot, one of 1739–40 given by Thomas Foley, one of 1746–47 given by Francis Vernon, one of 1751–52 given by Charles Paulet, one of 1757–58 given by Edward Fitzgerald, and one of 1762–63 given by Hans Sloane. There is also a fine collection of ale plate. Of the smaller tankards, stoups, and drinking cups there are innumerable specimens. I will not dwell longer over our other pieces. Suffice it is to say that of punch-bowls there are three or four fine specimens of the eighteenth century, as also various snuff-boxes, silver trays, etc. Of candle-

sticks there are between two and three hundred, many of them beautiful pieces of work. Of ordinary domestic plate the stock is large.

There is also a good deal of plate which has been given or assigned for use in the lodge: this includes the Perry silver-gilt dessert service. In the chapel plate besides the flagons already mentioned there are two silver-gilt patens of 1661–62, associated in the early catalogues with the names of John and Bernard Stuart; also an alms-dish of 1673, and an altar cross given in 1894 and said to be of Spanish renaissance work.

I add some particulars of thirteen challenge pieces of plate owned by the Boat and Athletic Clubs: of these, five belong to the First Trinity Boat Club, and eight to the Athletic Club. These pieces are of recent make and their chief interest comes from the inscribed names of the successive holders.

Trinity men will recollect that there are various races arranged each year by the First Trinity Boat Club, the winners of which receive pots or other prizes, and that in five of these events, the winners, in addition to receiving the special prizes, hold challenge pieces on which are engraved the names of past winners. These challenge pieces are: A two-handled silver chased cup and stand (hall-mark 1836), held by the winner of a sculling race (the

Macnaughten Sculls) rowed in the Michaelmas Term, open to all members of the Club who have not previously won it or the University Colquhoun Sculls. A two-handled silver cup and stand (hall-mark probably 1857 or 1858), which came to the club from the now defunct Second Trinity Boat Club, held by the winner of a sculling race (the Baines Sculls) rowed in the Lent Term, open to all members who have not previously won it or the Macnaughten Sculls or the University Colquhoun Sculls. Silver oars (hall-mark 1860) held by the winners of a pair-oared race (the Wyatt Pairs) rowed in the Michaelmas Term, open to all members who have not previously won it or the University Magdalene Pairs. Silver oars (hall-mark 1861) which came to the Club from Second Trinity, held by the winners of a pair-oared race (the Dodington Pairs) rowed in the Lent Term, open to all members who have not previously won it or the Wyatt Pairs or the University Magdalene Pairs. Silver Sculls (hall-mark 1897) held by the winners of a double sculling race (the Taxis Sculls) rowed in the Easter Term, open to all members who have not previously won it or the University Magdalene pairs.

Similarly among the sports arranged each year by the Trinity Athletic Club are seven events, the winners of which in addition to receiving special prizes, hold challenge pieces of plate on which are

engraved the names of past winners. These challenge pieces are: A half-fluted silver bowl and plinth (hall-mark 1887) held by the winner of the mile race. A half-fluted silver bowl and plinth (hall-mark 1899) held by the winner of the half-mile race. A silver chased claret jug with handle (hall-mark 1886) held by the winner of the quarter-mile race. Four silver candlesticks (hall-mark 1899) held by the winner of the hundred yards race. A two-handled half-fluted silver cup (hall-mark 1888) held by the winner of the hurdles race. A two-handled silver bowl (hall-mark 1896) held by the winner of the long jump. A silver salver (hall-mark 1896) held by the winner of the high jump. Finally there is a two-handled silver chased cup and plinth (hall-mark 1892) held by the man who scores most marks in the various events.

It may be thought that I have occupied too much space in giving bare lists of pieces of plate, but the shapes of some of the pieces are so good and the surface of old silver, when carefully tended, has such a beautiful texture that I believe it may be worth calling the attention of any interested in such things to some of our possessions of this kind. Only societies and families with continuous records dating from a distant past can show such collections.

CHAPTER VII.

THE COLLEGE AUDITORS.

THERE is no reference in our earliest college statutes—those of 1552—to an Auditor, but the extant accounts show that the office existed from the foundation of the College in 1546. Definite regulations for the appointment were proposed in the draft statutes of 1554, and were embodied in the statutes of 1560. By these the auditor was made one of the statutable officers of the Society: the post was held for long periods, and it was not permissible to perform the duties by proxy. The statute in question was re-enacted in 1844. By the statutes of 1861 the office was made annual, and tenable only during pleasure. It remains annual under the present statutes, but a definite proviso was inserted in 1882 that it is not tenable by a fellow or officer of the House, and a clause was introduced providing for the appointment from among the fellows of an Assessor or Assessors who should be present during the audit.

From the foundation of the College, its financial year ran from Michaelmas to Michaelmas, and the audit of each year was concluded in the following December. At first the annual honorarium of the

auditor seems to have been £10 with an allowance of £2 for travelling expenses, stationery, etc., but before the end of the sixteenth century it had been reduced to £5, with an augmentation of £3. 6*s*. 8*d*. and some allowances.

The form of the *declaratio computi* was much as at present, and generally, with but small variations, it takes the form now stereotyped "and so the said "A. B. Senior (or Junior) Bursar upon the foot of "this his account for one whole year ending Michael-"mas...oweth unto the College the sum of...." In some cases, and notably in the seventeenth century, the sums include fractions of a penny, even as small as one thirty-second part thereof. Presumably the audit was always followed by a "feast," as still remains the custom.

Of the occupants of the office from 1546 to 1618 the information in the college books is incomplete. The only auditors previous to 1618 whose names I have noticed, with the years in which they held office, are Edward Burnell, 1553, 1561, 1563 and 1564; Adam Winthrop, 1606; and Richard Brooke, 1614. I have not, however, read the account-books through from cover to cover, and it may be that there are references which have escaped me. Luckily Winthrop's diary and some memoranda from 1595 to 1621 are extant, and contain references to a few earlier dates. From these we can take our

continuous record back to the year ending Michaelmas 1593, when he was auditor. He resigned in 1610, and was succeeded by Brooke. Brooke was acting in 1615, and had commons in 1616, and I have no doubt acted in 1617. From 1618 onwards we can, from one source or another, make out the names of those who held the office. The handwritings of the earlier auditors have marked characteristics. They suggest that there was one auditor from 1547 to 1552, another from 1553 to 1578, who must have been Edward Burnell, another from 1579 to 1591, and another from 1592 to 1609, who must have been Adam Winthrop. But I present these as mere surmises, and I do not attempt to go back beyond 1593.

Our roll then is as follows. From 1547 to 1592 we cannot definitely say more than that Edward Burnell was auditor for a period which included the years 1553 to 1564, for no doubt his tenure was unbroken. From 1593 the sequence runs thus: Adam Winthrop, 1593 (or earlier) to 1609; Richard Brooke, 1610 to 1617; Robert Spicer, 1618 to 1628; Francis Hughes, 1629 to 1668; Samuel Newton, 1669 to 1717, Newton resigned in 1674, and thereon he and William Ellis were appointed to the office, with remainder to the survivor of them, but apparently William Ellis never acted; Denys L'Isle, 1718 to 1726; William Greaves, 1727 to 1778; Robert

Graham, 1779 to 1791; Samuel Knight, 1792 to 1811; Nicholas Conyngham Tindal, 1812 to 1825; James Parke, 1826 to 1828; Andrew Amos, 1829 to 1836; John George Shaw-Lefevre, 1837 to 1851; George Denman, 1852 to 1862; George Valentine Yool, 1863 to 1869; Augustus Arthur VanSittart, 1870 to 1881; John Willis Clark, 1882 to 1908. Since 1908 the office has been held by a professional accountant. The dates given indicate the ends of the audit year: thus the audit of 1669 was for the year 1668–69. It will be noticed that during the three hundred and sixteen years from 1593 to 1908, there were, if we omit William Ellis, only seventeen auditors, giving an average tenure of more than eighteen years. Of these seventeen auditors at least eleven have been lawyers and four ultimately rose to the Bench. I add a few biographical notes on these auditors.

Of Edward Burnell, the earliest holder of the office whose name I have given, I know nothing. His successor Adam Winthrop, 1548–1623, the son of a prominent London merchant and reformer, had been admitted as a fellow-commoner at Magdalene in 1567, and had left the University without a degree. He had been called to the bar, but did not practise, and was content to fill the rôle of a well-to-do country squire. He was an intimate friend of Still, master of Trinity from 1577 to 1593, whose sister he married in 1574, and whose wife

was his connection by marriage. I conjecture that he owed the office to Still's influence. Winthrop was a fair scholar, an indifferent poet, and somewhat of a pedant. His tomb is at Groton, Suffolk. More than one of his descendants were distinguished. In particular his son, John, 1588–1649, who was admitted to Trinity College in 1602, was the founder of the well-known American family of this name; and his great-great-grandson, Sir George Downing was the founder of Downing College.

Winthrop seems to have done the whole of the audit work at the end of the Michaelmas term of each year. Thus in 1601 he wrote:

> The ivth of Decemb. I ridde to Cambride & beganne the Auditt the 7th beinge Monday. The xiiijth of Decembre I returned from the Auditt & did see the Sonne in the Eclips about 12 of the Clock at noone.

Perhaps his resignation was made at the suggestion of the College, for early in 1610 he wrote:

> Dr Meriton came to speake with me about the resignation of my office in Trinity College to Mr Brookes.... I surrendered my Auditorship in Trinitye College to the Mr fellows & schollers before a pub. notary....I dyned at Dr Meriton's in Hadley & received of him xxlb for my Auditorshippe....Mr Rich. Brooke the nue Auditor of Trinity College was at my house in Groton to whom I dd. divers paper books & Roles touchinge his Office.

Of the next three auditors I can discover very little. Richard Brooke was appointed in 1610.

The following conclusion of 8 June 1615, seems to refer to him, "concluded that Mr Brookes in regard "of his paines taken divers times for the Colledge "that he shoulde...have given him Twentye "pounds," and during his visits in the following year be allowed commons. We may assume that he held office till the end of 1617. A Richard Brookes had entered at Queens' as a fellow-commoner in 1587, but whether he was the subsequent auditor there is nothing to show. In 1618 we have the copy of the appointment of Robert Spicer. He held office till the end of 1628, since a conclusion of 3 June 1629, appointed in his place Francis Hughes. Hughes, who held the office till his death in October 1669, was admitted a scholar in 1616, graduated M.A. in 1623, was one of the esquire-bedells, and occupied rooms in College at the time of his death.

The next occupant of the office was Samuel Newton, 1629–1718, a prominent attorney in the town and mayor in 1671. He was not a member of the University. His diary from 1662 to 1717 preserved in the library of Downing College, contains an account of his election to the post in the chapel by the master and seniors, he being present in the antechapel. He attended next day in his gown, was sworn to the faithful discharge of his duties, and signed the roll of college officers. He

proved thoroughly efficient. For his services at the audit in 1669 he received the fee of £5 with the customary augmentation of £3. 6*s*. 8*d*., a sum of £6. 13*s*. 4*d*. for engrossing the audit rolls, which henceforth were kept excellently, a sum of £1 for preparing a book of arrears, and a sum of £1. 2*s*. 8*d*. for stationery. He also received from the junior bursar, billets of wood of the value of 6*s*. 8*d*.; from the steward, a "warp of lyng" of the value of 6*s*. 8*d*.; from the manciple, a "coller of brawne, also a dish "of wild fowle or 6*s*. 8*d*."; and from the brewhouse, "2 barrels of strong beere."

In 1674 Newton surrendered his patent of appointment as auditor, but he was immediately reappointed jointly with his cousin, William Ellis, with remainder to the survivor of them. They were at the same time appointed on the same conditions to the office of college registrar, then vacant by the death of a Mr T. Griffith. According to Newton's diary, William Ellis proceeded M.A. in 1670, but his name does not appear in the list of graduati, unless indeed he is the Wm Ellis who received the degree *per lit. reg.* in 1671. The college account-books continued to be signed by Newton, and I have not noticed in them evidence that Ellis ever took any part in the audit. The Society's solicitors and attorneys have frequently acted as registrars, and it may be that Ellis was in partner-

ship with Newton, and was for that reason made with him joint auditor and registrar.

Samuel Newton died in 1718 in his ninetieth year. For the three years, 1715, 1716, and 1717, the books were audited by John Newton, presumably his son or grandson, as his deputy. No doubt the arrangement was made in consequence of the failing health of the old gentleman whose signature in 1714 was very shaky. The appointment of a deputy was invalid under the statute, but it must have been made with the approval of Bentley, and perhaps of the seniority. At any rate John Newton conducted the audit, and signed the books as deputy auditor.

Newton was succeeded in 1718 as auditor and registrar by Denys L'Isle. L'Isle had been a fellow-commoner of Trinity Hall, admitted in 1712, graduated LL.B. in 1715, who had gone down and in 1716 taken his name off the books. He was a vigorous and not too scrupulous barrister. He owed his appointment to Bentley, and he showed "extraordinary activity and zeal in promoting all" his benefactor's "wishes and interests" and represented him in some of his disputes. Whatever view may be taken of Bentley's character, no one can justify his conduct in regard to the college finances. A notable scandal occurred in the audit of 1722. In the accounts of that year large sums were charged

to the College for works at the lodge and other sums spent by the master which had not been sanctioned by the Society. Undoubtedly the charges were illegal, but Bentley and L'Isle refused to allow the accounts to be examined by the seniority. In fact in this, as in other matters, L'Isle had no scruple in screening Bentley from the consequences of acts which were neither legal nor honourable.

L'Isle died in 1727, and was succeeded as auditor, steward of the courts, and registrar by William Greaves. Greaves had in 1719 migrated to Clare, Cambridge, from Brasenose, Oxford; he graduated B.A. in 1720, and in 1722 was elected at Clare to a fellowship which he held till 1742. He was a barrister and an able man: he too owed his office to Bentley, and acted as his counsel in many of his tortuous proceedings. Through Bentley's influence Greaves had in 1726 been made commissary of the University, an office which he held till 1778. The letters patent to the office of college auditor were made out for the term of his life, but a question having been raised as to whether this was statutable, he surrendered them, and the College granted new patents for the term of fifty years if he should live so long. I suppose he was duly admitted to the office, for probably an acute lawyer would have seen to this, but there is no record of the fact in our books.

Greaves seems to have performed his duties as

auditor in an honourable manner. After the audit of 1778, he surrendered his office at the close of fifty years' tenure of it: he then received a present of plate from the College, with their thanks for his long and faithful services. Six years later he made a donation to the Society of £100 to found an annual prize for an essay on the character of King William the Third. After nearly a century it was said that the essayists had exhausted the subject, and in 1882 the College got leave to substitute for it one connected with the history of the British Empire.

Robert Graham, 1744–1836, a lawyer of note, succeeded Greaves. Graham had graduated as third wrangler in 1766, and in the following year had been elected to a fellowship. He held the office till after the audit of 1791. He was made a baron of the exchequer in 1799, and proved a singularly inefficient judge. He retired from the bench in 1827.

Graham's chief distinction is said to have been his urbanity, and at the Bar it was currently believed that no one but his sempstress had power to ruffle his equanimity. He was somewhat pompous, and an adventure of his at the assizes at Newcastle afforded much amusement to his contemporaries. There, on one occasion just before charging the grand jury, he tumbled, unnoticed, into the river from the garden of the house where he lodged, but

luckily was hauled out by some passing watermen. The rough remedies of the quay-side failed to restore consciousness, and the bystanders, supposing he was drowned, carted him to a dead-house, where he was stripped and laid out. The coroner's jury, summoned with unusual celerity, had viewed the body, and were considering their verdict when, to their surprise he showed signs of life and came to himself. His position was not altogether dignified, but realizing at once that it is always incumbent on a judge to move in state, he was by his directions fetched from the mortuary in the sheriff's carriage, with the trumpeters, and usual ceremonial.

Of Graham's successor, Samuel Knight, 1755–1829, I know little. He had been admitted as a pensioner in 1772, became a fellow-commoner in 1774, and graduated in the poll in 1776. Apparently he had no special qualifications for the post beyond being a pleasant member of society. He resigned in 1812, and died in 1829.

After Knight's resignation, the post was offered to Nicholas Conyngham Tindal, 1776–1846, a lawyer of distinction. He had graduated in 1799 as eighth wrangler, was a Chancellor's medalist, and had been elected to a fellowship in 1801, which, as he did not take orders, he had vacated in due course in accordance with the provisions of the Elizabethan statutes. The plan of offering the post to a distinguished

past fellow now became the custom, and all the auditors hereafter mentioned were past fellows of the college.

Tindal was one of the counsel for queen Caroline; he is celebrated in the history of the courts for having secured to a criminal client the right of wager of battle, which had long fallen into disuse but had not been abolished by statute. He was member for the University from 1827 to 1829 in which year he was made chief justice of the Common Pleas; he held that office till his death in 1846. Though not specially successful as an advocate, he had a profound knowledge of law and was an excellent judge. His enormous dimensions are commemorated in a print in my possession with the inscription "Judges of A Size," representing him standing by Joshua Williams one of his colleagues on assize, who was very diminutive; probably this is an ancient joke.

The next auditor was James Parke, 1782–1868, a lawyer of even greater distinction. He had graduated in 1803 as fifth wrangler, and had been Craven scholar, Browne's medalist and Chancellor's medalist. In 1804 he had been elected to a fellowship. He was one of the counsel briefed against queen Caroline. He was made a judge in 1828, and of course then resigned the office of auditor, which he thus held for only three years.

Parke had a profound knowledge of the common law, and admired, and was a rigid adherent of, ancient forms and customs. The fact was well known, and led to a curious scene, when on one occasion, while giving a judgment, he fainted. Cold water and smelling salts were applied without success, whereon a somewhat malicious colleague brought from an adjacent room an ancient volume of reports, black with the dust of ages, and banged it under the nostrils of the judge. It may have been a coincidence, but Parke at once revived, and in a few minutes was able to proceed with the business in hand.

At one time when Parke was trying a criminal case the prisoner confessed his crime to his advocate, who thereupon (most improperly) acquainted the judge with the fact and asked his advice. Parke rebuked the barrister for informing him of the prisoner's guilt, but added that counsel was not the less bound to defend his client to the best of his ability. The case has been often cited, and states the practice of the bar; it being of course assumed that nothing is said or done for the defence which an honourable man might not say or do.

Parke's subsequent career served to settle a constitutional question of great importance. In 1856 he was created Baron Wensleydale with a life peerage. It was decided that the power of the

crown to create life peerages had been lost by disuse. He was then made a baron with the usual remainder in tail male.

Parke was followed as auditor by Andrew Amos, 1791–1860, also a lawyer of distinction. He had graduated as fifth wrangler in 1813, and in 1815 had been elected to a fellowship. He was appointed auditor in 1829. He had a large arbitration practice, acted on the Criminal Law Commission, and was professor of English Law in London. In 1837 he was appointed legal member of the Indian Council, and on his departure for the East had to resign his office in the college. On the first vacancy after his return to England, he was, in 1848, elected Downing Professor of Laws in Cambridge, and occupied the chair until his death.

Amos was succeeded by John George Shaw-Lefevre, 1797–1879. Shaw-Lefevre had been senior wrangler and first Smith's prizeman in 1818, and had been elected to a fellowship in the following year. Like his predecessors he was a barrister, but most of his time was taken up with duties connected with public departments. He settled the county divisions under the Reform Act of 1832, and was a member of numerous Commissions, notably those connected with compensation for the abolition of slavery, with the Poor Law Act, with the creation of South Australia, with ecclesiastical affairs, and with

the Indian Civil Service: till 1875 he was busily engaged in public affairs. He stood unsuccessfully for parliament in the university contest of 1847. He resigned the auditorship after the audit of 1851. His tenure of the post is commemorated by his gift of the chandelier which hangs in the large combination room.

The next auditor was the Hon. George Denman, 1819–1896, also a lawyer. Denman had been senior classic in 1842, and had been elected to a fellowship in the following year. He had always kept up his connection with the College, where he had numerous friends. He became auditor in 1852. Like his predecessor he stood unsuccessfully for parliament as a representative of the University: this was in 1856. Subsequently he was appointed counsel to the University. He entered parliament in 1859, and owing to press of work gave up his college office at the close of the audit of 1862. After a distinguished legal career he was raised in 1872 to the bench. He was a good scholar, had a fine presence, and to the end of his life was popular with all classes of Cambridge society.

If I may trust my memory Denman told me that among his annual perquisites as auditor was a case of audit ale, and that on one occasion he gave it to Livingstone who he knew would appreciate it. The case travelled with the explorer through Africa,

and as long as the ale lasted glasses of it were circulated, to the great satisfaction of the natives, whenever solemn treaties were ratified.

The next holder of the office was George Valentine Yool, 1829–1897, a chancery barrister, who had been third wrangler and second Smith's prizeman in 1851, and had been elected to a fellowship in 1853. Yool took but little part in public affairs. He was appointed auditor in 1863, and gave up the office at the end of 1869.

After Yool's resignation the College reverted to its former practice, and appointed as auditor a resident, Augustus Arthur VanSittart. VanSittart had been bracketed senior classic in 1847, and had been elected to a fellowship in the following year. After once standing unsuccessfully for parliament, he devoted himself to literary work, and among other things collected and collated the various readings of the New Testament. His annual speech at the audit feast, wherein he gave a witty sketch of the more interesting developments of academic life during the preceding year, was one of the features of the time, and served somewhat the same purpose as the Tripos verses of earlier ages. He held the office till his death in the spring of 1882. He was wealthy, and a most generous benefactor of the Fitzwilliam Museum and other Cambridge institutions.

On VanSittart's death the post was given to John Willis Clark, 1833–1910. Clark had come up to Trinity in 1852, obtained a first class in the classical tripos, 1856, and was elected to a fellowship in 1858. He made his home in Cambridge, and his unceasing activities in zoological, library, and theatrical matters are chronicled in the local records. He completed the *Architectural History of the University*—a permanent and invaluable record of Cambridge history—which had been commenced by his uncle, and wrote on various library and antiquarian subjects. He held the registraryship of the University from 1891 to his death in 1910.

Clark vacated the office of auditor in 1908, and since then the College has appointed to the post a professional accountant.

CHAPTER VIII.

WREN'S DESIGNS FOR THE COLLEGE LIBRARY.

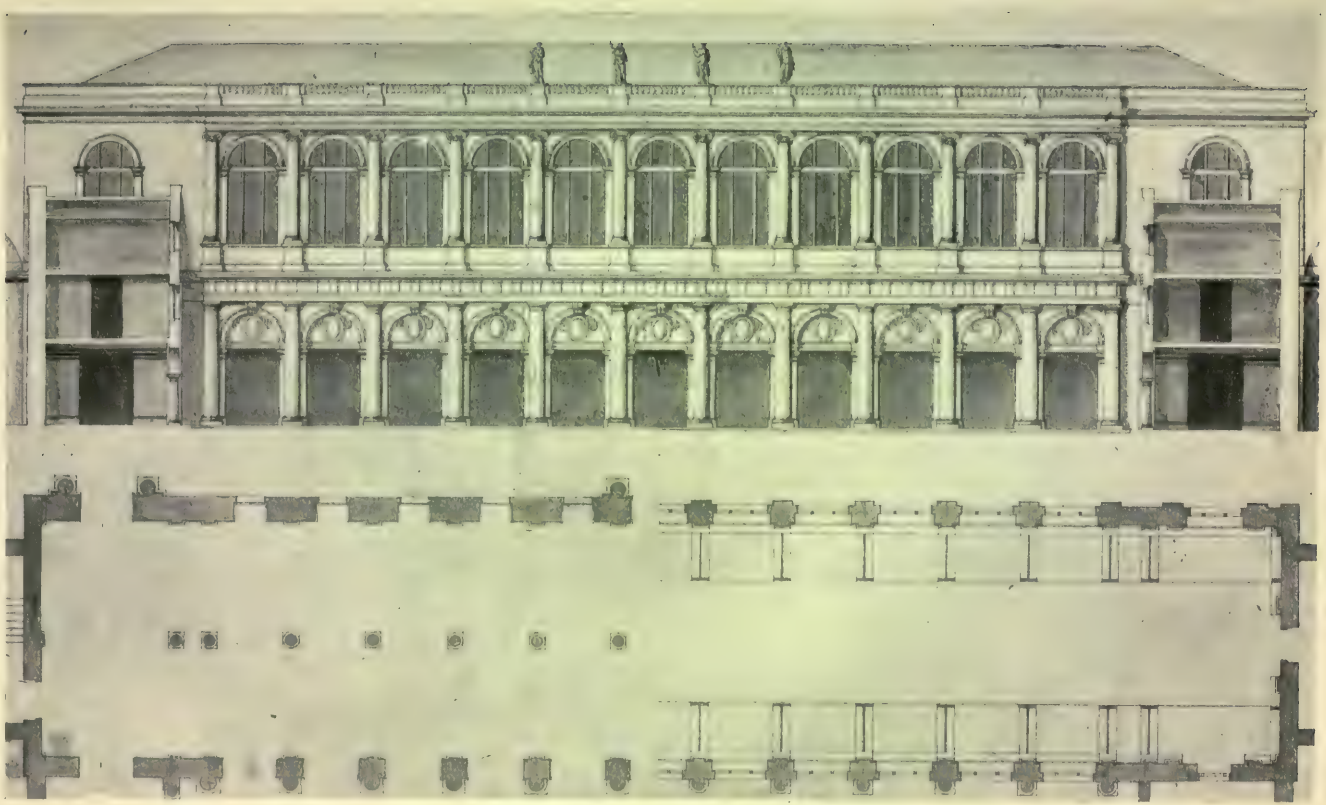
IN 1914 the College obtained an interesting series of photographs of Wren's original drawings and plans for our library in Nevile's Court. They will well repay inspection by those who are interested in our history or in architecture.

The present library is the third building assigned by Trinity for the purpose. During the first half-century of its existence the Society used the library* of King's Hall, a good first-floor room, some twenty feet long by ten feet broad, which had been built in 1416–21 near the north-west corner of the cloister court of that House. This room was connected with the old oratory of King's Hall by a gallery over the west cloister.

Soon after the foundation of Trinity the provision of a larger library was contemplated, and in the order (about providing building materials for the chapel) of queen Elizabeth of 1560, it is said that its erection had been already begun. In fact however it was then only under discussion.

Our predecessors, in their arrangements for the "reconcination" or rebuilding of the Great Court,

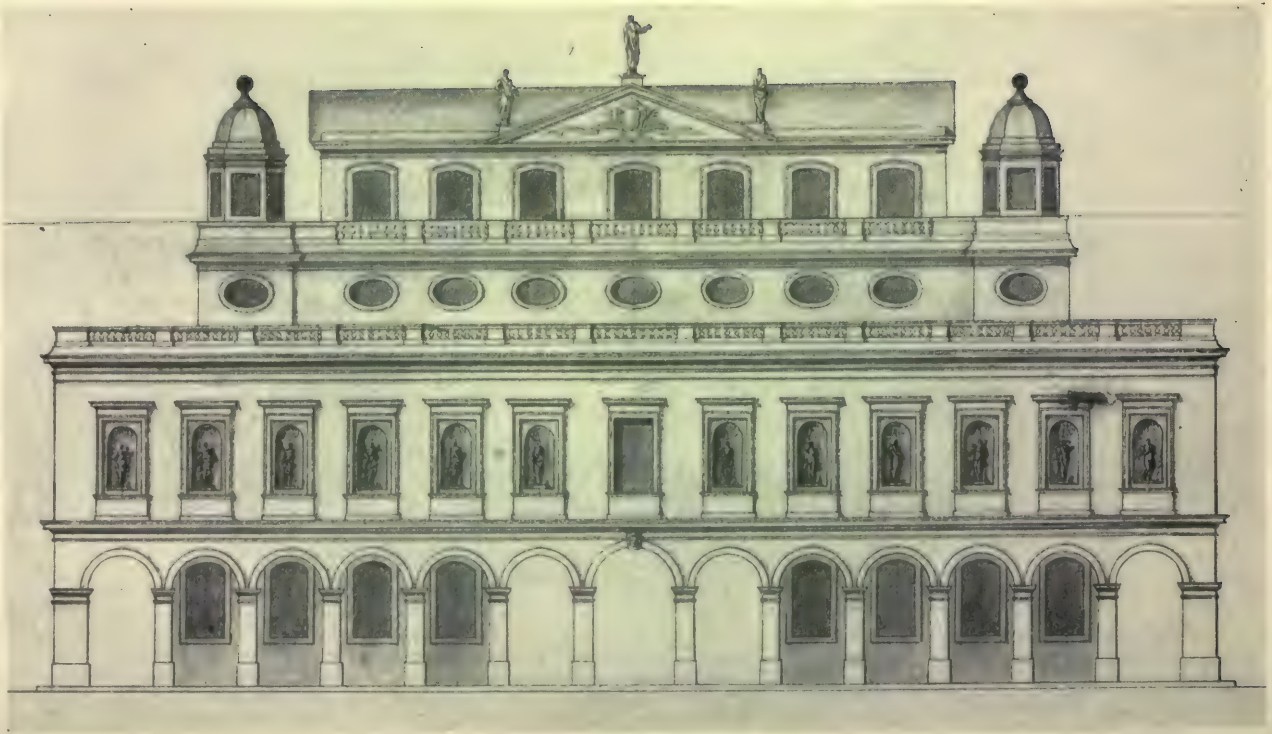
* There was an earlier library in King's Hall but we do not know where it was situated.



Wren's Second Design for the College Library. Exterior.

Wren's First Design for the College Library. Exterior.

Wren's First Design for the College Library. Interior.



Wren's Design for a Senate House.

naturally attached great importance to not interfering with King Edward's Tower which had long been the chief entrance to King's Hall and then stood near the present sundial. A suggested way of working this Tower into the scheme of the court is shown on the plan which hangs on the staircase leading to the library annexe; in this, a block one hundred feet long and thirty-four feet broad, was to be built over an open colonnade running eastwards from the Tower and ending in front of and a few yards from the Great Gate. The first floor of this block might have been used for the new library; or alternatively it might have been used for chambers, and the new library built elsewhere, for instance, as was suggested, on the site of the range of chambers which now stretches from the chapel to the turret staircase adjoining the lodge.

Neither of these proposals was then adopted, and our second library was not erected till Nevile, between 1594 and 1600, took the matter in hand. He provided for it a room seventy-five feet long and thirty feet broad on the second floor of the range connecting the Clock Tower and the lodge; it has since been converted into chambers.

Less than a century after Nevile's library was finished, the Society again found it necessary to provide more book accommodation, and the result is the impressive and excellently designed building

which stands on the west side of Nevile's Court. According to tradition, its erection, commenced in February 1676, was due to Barrow, then master of the College, who in the previous year had pressed the other heads of Houses to provide a room worthy of the University for its meetings, and urged that it should be of the best. Such schemes are expensive and cannot be effected without public spirit. Caution, it is said, carried the day, whereon Barrow, piqued at this faint-heartedness, declared that he would go to Trinity, "lay out the founda-"tions of a building to enlarge his back court, and "close it with a stately library, which should be "more magnificent and costly than what he had "proposed....And he was as good as his word, for "that very afternoon he...staked out the very "foundation upon which the building now stands."

The story may be substantially true, for the long-cherished idea of building a university theatre and library was then in the hands of a syndicate: on the other hand the extant speech of Barrow in which he put forward his policy was not delivered till the Easter term 1676, and Wren's designs for such a building are referred to the year 1678 and indicate that the scheme had not been then abandoned. But whether the anecdote be true or not, we may take it that the erection of our library was due to Barrow's initiative, and that he personally raised a considerable sum towards its cost.

Sir Christopher Wren, a warm personal friend of Barrow, was selected as the architect, and placed his services at the disposal of the College without remuneration. His original drawings are included in a collection of his designs preserved at All Souls' College, Oxford, and by the kindness of that Society we have been allowed to take photographs of the plans which concern us. These relate to two plans for our library and one for a university commencement-house. The two plans for Trinity were made not later than 1675; they may have been submitted as alternatives, but there is a tradition that the second design was prepared only after the first had been rejected.

Nevile's Court, as now arranged, contains three staircases on each of its sides, is closed on the east by the hall and small combination room block, and on the west by the library. In 1675 only two of the staircases on each side had been built, and the western ends of these were connected by a blank wall pierced in the middle by a gate, which is believed to have been later removed, stone by stone, and finally placed as the entrance to the College at the bottom of Trinity lane, where it now stands. Beyond this wall and between it and the river was the college tennis court. The land between Nevile's Court and the river was selected as the site of the library.

Wren's first design shows a double cylindrical shell about sixty-five feet across inside and ninety

feet high, surmounted by a dome and entered through a six-columned Ionic portico facing Nevile's Court. On the ground floor was a lobby round which were stone seats. Above this the inside of the inner cylindrical shell was lined with book-shelves, and for convenience of approach there were three galleries. The room was lighted by windows in the dome and a superimposed lantern. The east side of the portico was half-way between the western ends of the court, and these ends were connected with the body of the library by low curved walls surmounted by iron rails. This building is described as "a very beautiful and most commodious model," but it strikes the ordinary layman as poor in design, and I do not think that all Wren's genius could have made it other than unsatisfactory. Why it was rejected we do not know, but few will doubt that the decision was wise.

Wren's second or alternative design, which was adopted, shows a lofty oblong room about one hundred and fifty feet long by thirty-eight feet broad supported on a colonnade. Several of his drawings for this were engraved for the *Architectural History of Cambridge* by Willis and Clark, but the photographic reproductions of the originals—some with Wren's notes attached—which are now available have an interest of their own. A careful study will show details which were subsequently modified. The present library was placed to the west of the

court as then built, and the rows of chambers on each side were extended to meet it. It is well-known that the shelves, cases, benches, tables, and book-rests now used were designed by Wren, and his drawings for them are reproduced in this series of photographs. The removal of all the bookcases except those fixed against the walls would enable us to judge the appearance intended by Wren. How fine the effect must have been, may be gathered from the plate in Le Keux's *Memorials* or the engraving in the *University Almanack* of 1852.

Among Wren's plans is also one for "a Theatre "or Commencement-House with a Library annexed, "according to an Intention for the University of "Cambridge, about the year 1678, but not executed." Whether this represents a sketch of the general plan which it is said that Barrow had suggested to the heads of Houses in 1675 it is impossible to say. The erection of a building on these lines might have been costly, but the result would have been a valuable addition to the architecture of Cambridge.

I published in the *Trinity Magazine* in 1914 the elevations of our library according to Wren's two plans and of his suggested Commencement or Senate House. I reprint these here (see above, pp. 145–148), but add nothing more as it is intended shortly to reproduce in book-form various drawings on the subject made by Wren.

CHAPTER IX.

A CHRISTMAS JOURNEY IN 1319.

In the Record Office in London are preserved some money accounts* concerned with a visit of the scholars of King's Hall to York at Christmas in the year 13 Edward II, that is, in 1319. The following analysis gives the route followed by one section of the party and the expenses of the journey: it is a valuable record of the method and cost of travelling in medieval times.

By way of preamble, I may say that the origin of King's Hall is to be found in the establishment at Cambridge, in 1317, by Edward II, of a body of Scholars or King's Children; that they were regarded as part of the royal household; and that the nominations to the office of warden and to scholarships were reserved to the king. King's Hall was dissolved in 1546, and its buildings and property assigned by Henry VIII to Trinity College.

Early in December 1319, the warden and scholars were ordered to spend the coming Christmas with the court, then at York, and the sheriff of Cambridgeshire was directed to provide for their journey. During the preceding Michaelmas term thirty-three

* *Exchequer Accounts*, 552/10.

members of the House had been in residence, and all of them went to York.

The names of the members of the House in 1319 are immaterial to our story, but I venture to give them, for these students lived here nearly six centuries ago, and doubtless had hopes, plans, and ambitions at bottom much the same as we have. They were, in order of seniority, John de Bagshot the warden, Nicholas de Durnford, Nicholas de Rome, David de Winchester, William Pour, Richard Pour, Nicholas Pour, John de Aston, John de Torterold, James de Torterold, Robert de Immeworth, Thomas de Windsor, Walter de Nottingham, Roger Parker, John de Kelsey, John de Hull, Edward de Kingston, Hugh de Sutton, Philip de London, John de Salisbury, Richard de Salisbury, Robert de Beverley, John Fort, Ralph de Gretford, Henry de Gretford, Nicholas Parker, Nicholas Pull, Richard de Berwick, Andrew Rosekin, Thomas Griffon, John Griffon, William Draghswerd, and John de Woodstock. It will be noticed that some of the students are designated by surnames which were already coming into use and some by place names: the latter show from what a wide area the scholars were drawn.

For the purpose of travelling the Society was divided into two sections, both of which started from Cambridge on Thursday*, 20 December. One

* In my original paper the days of the week were given incorrectly.

party, comprising the warden, John de Bagshot, and six of the scholars, went on horseback, and arrived at York on Christmas eve. Their journey thus occupied five days and they covered about thirty-five miles a day; of it we have no particulars, save that the warden paid £1. 3*s*. 4*d*. for the hire in Cambridge of seven hackneys, and was allowed £1. 9*s*. 2*d*. for the other expenses, namely 10*d*. a day for each member of the party. The remaining twenty-six scholars travelled under the care of one of their number, John de Aston, and arrived at York on 28 December. They took with them seven and a half lengths of cloth with the furs thereto belonging, and four grooms, but whether the grooms went the whole way is not clear. It is with this nine days' journey that I here deal.

The cloth and furs which had been purchased on behalf of the crown from merchants at Bury were valuable. The former was red in colour (*de blodes mixto*) and had cost £21. 2*s*. 6*d*.: the latter comprised twenty-one lamb skins, bought for £2. 19*s*. 6*d*. and six budge skins, bought for £1. The carriage of these goods must have been a serious hindrance to rapid travelling.

The first two days, Thursday and Friday, 20 and 21 December, were occupied in the journey from Cambridge to Spalding. This was made in two hired boats (with the services of six men), for which

the charge was 5*s*. On 20 December, the travellers paid 2*d*. for porterage of their goods to the boats at Cambridge, 1*s*. 7*d*. for bread, 2*s*. for beer, 1*s*. for herrings, 1*s*. 4*d*. for hard fish and codlings, and 4*d*. for fuel. On 21 December they paid 1*s*. 5*d*. for bread, 2*s*. 2*d*. for beer, 1*s*. 7*d*. for herrings and other fish, 3*d*. for cheese, 2*d*. for porterage from the boats at Spalding, 5½*d*. for fuel and candles, and 8*d*. for beds at Spalding.

On Saturday, 22 December, they travelled to Boston. On this day, they paid 2*s*. for hiring two carts for carrying the cloth and fourteen of the scholars, and 3*s*. for twelve hackneys for the rest of the party. They also spent 1*s*. 4*d*. for bread, 1*s*. 11*d*. for beer, 2*s*. 3*d*. for herrings and other fish, 5*d*. for fuel and candles, and 8*d*. for beds at Boston.

The next two days, Sunday and Monday, 23 and 24 December, were occupied in the journey to Lincoln which was performed in a single large boat. On 23 December, they paid 5*s*. for the hire of this boat, 4*d*. for straw to spread on it, 2*d*. for porterage to the boat, 1*s*. 6*d*. for bread, 2*s*. 7*d*. for beer, 2*s*. 4*d*. for meat, 1*s*. 6¾*d*. for eight hens, and 6*d*. for fuel. On 24 December, they paid 1*s*. 2*d*. for bread, 2*s*. for beer, 2*s*. 1*d*. for herrings and other fish, 9*d*. for eels, 3*d*. for porterage from the boat at Lincoln, 6½*d*. for fuel and candles, and 8*d*. for beds at Lincoln.

Tuesday, being Christmas Day, was spent quietly

at Lincoln. Their expenses for the day were 1*s.* 4*d.* for bread, 2*s.* 1*d.* for beer, 2*s.* 3*d.* for meat, 1*s.* 1¼*d.* for five hens, 7½*d.* for candles and fuel, and 8*d.* for beds.

On Wednesday, 26 December, the party travelled to Torksey, making the journey in two boats hired at Lincoln. On this day, they paid 2*s.* 8*d.* for the hire of the boats, 3*d.* for porterage to the boats, 1*s.* 8*d.* for bread, 2*s.* 3*d.* for beer, 2*s.* 1*d.* for meat, 7*d.* for eggs, 4*d.* for fuel and candles, and 8*d.* for beds at Torksey.

The next two days, Thursday and Friday, 27 and 28 December, were occupied in the journey from Torksey to York, which was made in a large boat hired at Torksey. On 27 December, they paid 6*s.* for the hire of this boat, 2*d.* for porterage to the boat at Torksey, 1*s.* 7*d.* for bread, 2*s.* 6*d.* for beer, 1*s.* 10*d.* for meat. On 28 December, they paid 1*s.* for bread, 1*s.* 5*d.* for beer, 1*s.* 4*d.* for herrings and other fish, and 2*d.* for porterage of their goods at York.

The total cost of the journey came to £4. 5*s.* 8½*d.*, and this was repaid to the warden from the royal exchequer on 31 December. On the opposite page is a summary of the daily expenditure described above.

There are no records of the expenses of the Society during the time the members were at York; but presumably while there, they were treated as

	Dec. 20.	Dec. 21.	Dec. 22.	Dec. 23.	Dec. 24.	Dec. 25.	Dec. 26.	Dec. 27.	Dec. 28.
	s. *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*
Hire of Boats . .	5 0	...	...	5 0	...	...	2 8	6 0	...
Straw	...	...	...	4	...	...	...	...	...
Porterage . . .	2	2	...	2	3	...	3	2	2
Hire of Carts . .	...	...	2 0	...	...	...	...	...	...
Hire of Hackneys.	...	...	3 0	...	...	...	...	...	...
Bread	1 7	1 5	1 4	1 6	1 2	1 4	1 8	1 7	1 0
Beer	2 0	2 2	1 11	2 7	2 0	2 1	2 3	2 6	1 5
Hard Fish, etc. .	1 4	...	...	...	...	...	...	...	...
Herrings, etc. . .	1 0	1 7	2 3	...	2 1	...	...	...	1 4
Eels	...	...	...	...	9	...	...	...	...
Meat	...	...	...	2 4	...	2 3	2 1	1 10	...
Hens	...	...	...	1 6¾	...	1 1¼	...	...	...
Eggs	...	...	...	...	...	...	7	...	...
Cheese	...	3	...	...	...	...	...	...	...
Fuel and Candles .	4	5½	5	6	6½	7½	4	...	...
Beds	...	8	8	...	8	8	8	...	...
	11 5	6 8½	11 7	13 11¾	7 5½	8 0¾	10 6	12 1	3 11

members of the royal household. Their visit, however, was not devoid of incident since a warrant was issued against one of them, Robert de Beverley, for having joined with the prior of the preaching friars of Pontefract in an assault on a certain William Hardy: the student was left behind at York, and there disappears from our history. Two other members of the House, Edward de Kingston and David de Winchester, were also left in the city, of whom probably at least one was concerned in this disturbance. One new member, Warin Trot, was admitted at York. These changes reduced the numbers to thirty-one. Of these thirty-one members, twenty-one, under the guidance of John de Aston, came back to Cambridge on the festival of St Fabian and St Sebastian (*i.e.* 20 January), while the warden and the remaining nine scholars, among whom Trot was included, arrived on 9 February, and from these dates their stipends in Cambridge during the Lent Term, 1320, were reckoned.

Why the king summoned the members of the House to York at so considerable cost I cannot say, but I think the detailed statement of how most of them travelled and their expenses on the journey are interesting.

CHAPTER X.

AN OUTLINE OF THE COLLEGE STORY*.

I HAVE been asked to take you round Trinity College to-morrow, and by way of preface to say to-night something about its history. The first of these tasks, to anyone who lives here, is not difficult, but it is far from easy to give, in forty minutes, a sketch of a history covering centuries of academic life and involving references to the lives of many distinguished scholars and men of affairs. If I confined myself to an account of the buildings the problem would be simpler, but though they must form the chief topic of our talk to-morrow, I would prefer to-day to say something about the growth of the College. On these lines then I proceed, though necessarily in an incomplete way, to state the outline of our story.

2. Trinity College was founded in 1546, just about half-way back in the history of the University. Of those pre-Trinity days I will only say that the University arose about the end of the twelfth century, and that it was nearly a hundred years after its establishment before the first college was

* A paper read to a party of north-country students visiting the College in 1906.

founded. Colleges were erected for the benefit of selected scholars who were maintained at the expense of the foundation, and throughout the middle ages, most of the students lived in Private Hostels. In Tudor times undergraduates who paid their own expenses were admitted to colleges, and finally, every student was required to be a member of one of these Houses: the peculiar collegiate character of Oxford and Cambridge dates from this change. I need hardly add that women were not (and are not) admissible as members of the University, and that in former days teachers and students alike were unmarried.

3. Towards the close of his reign, Henry VIII determined to found a college at Cambridge which should promote his views on religion and the new learning. He decided to use for the purpose the buildings and land occupied or owned by two of the chief medieval colleges, King's Hall and Michael-House. Accordingly, under parliamentary powers, he compelled those Societies to surrender to him their charters and possessions, purchased such small parts of our present Great Court as did not belong to them, and gave all this property to his new college together with large revenues from religious houses which he had recently dissolved. The proceedings were high-handed, but we may say that the result justified him. It is believed that, during

these proceedings, the university careers of a few of the students, at any rate of King's Hall, were not interrupted, and that thus our academic life runs without a break from the days of Edward II to the present time. Most of the buildings of Michael-House have now disappeared, but our connection with King's Hall is still evident through the remains of its Cloister Court, our Great Gate which bears an inscription commemorating the permanent establishment of King's Hall by Edward III, and our Clock Tower on which is a statue of that monarch. To this group of buildings we must first direct attention to-morrow.

4. Trinity was far larger than the colleges to whose buildings and property it succeeded. Of course it has had ups and downs in its career, but it has generally occupied and still occupies a predominant position in the University. Thus in 1564, its residents numbered three hundred and six out of a total of one thousand two hundred and sixty-seven in the University, while last October [1905], it had five hundred and sixty-eight undergraduates out of a total of two thousand eight hundred and thirty-five in the University, and two hundred resident graduates out of one thousand and five in the University: we now confine our normal entry to under two hundred a year, and as long as this is so, our numbers cannot exceed a certain limit which we

have long reached, so, as the University grows, the percentage of students on our boards decreases. The College has always recognized that it was its duty to be a centre of learning as well as one of higher education, and thanks to its traditions and the large number of resident fellows, it has been able to fulfil this double duty.

5. For the first few years after its foundation, Trinity was occupied in settling the many problems which arise in a new foundation. As far as accommodation went, the buildings of King's Hall and Michael-House were connected, and sufficed for immediate needs. Naturally the protestant character of the foundation given by Henry was emphasized by the advisers of Edward VI, the altar in the chapel being removed and a communion table set up in Huguenot fashion in the middle of the building. Queen Mary increased the foundation, and took a warm interest in its affairs; of course the Roman service was then restored. Under Elizabeth the Anglican services were resumed, and she completed the erection of the present chapel which had been begun by her sister: it stands to-day externally much in its original form, though the interior scheme of decoration is different. We may leave till to-morrow the description of it and college doings connected therewith. This first chapter of our history ends in 1560 when the constitution of the

College was definitely established in a form which remained practically unaltered till 1861.

6. The next decade was critical. Many of those who had adopted the reformed religion desired further changes on presbyterian lines, and Cambridge, which had taken so prominent a part in the reformation, was their chief intellectual stronghold. Their leader was Cartwright, a fellow of Trinity, and their chief opponent was Whitgift, the master of the College: thus a contest of national importance was mixed up with college politics and carried on partly within the college walls. Whitgift's powers as master were large, and he strained them to the utmost to remove from the House those who opposed him; times, however, were revolutionary and public opinion condoned and even approved his actions. At any rate victory remained with him and his party in the College, the University, and the State, and the position of the Church of England between Rome and Geneva is that for which he fought.

7. Whitgift acted as tutor to some of the students, among whom were Francis Bacon and his brother Anthony: you will see the portrait of the former (as also that of Whitgift) to-morrow, together with those of his contemporaries, Edward Coke subsequently the great lawyer, and Robert Devereux earl of Essex the ill-fated favourite of Elizabeth.

By a happy accident some of Whitgift's tutorial ledgers have been preserved, and we have in them details of the expenditure of his pupils, which, combined with information from other sources, enables us to give a fairly complete account of their daily work, prayers, meals, and amusements*. A usual age for commencing residence was fifteen or sixteen, and it would seem that students then (though of course subject in many things to reasonable restraints) were allowed that liberty of action which in my opinion is, even though sometimes misused, an essential feature of university education as opposed to the control of the pupil's doings in every hour of the day which is common in many schools. In 1577 Whitgift accepted a bishopric: an eloquent farewell sermon preached in College from 2 Corinthians, chapter 13, verse 2, revealed sincere affection for the place and moved his audience, "insomuch "that there were scarce any drie eyes to be found "amongst the whole number." He left the House prosperous and of high repute.

8. In 1593 Nevile was appointed master, and took in hand the needed reconstruction of the

* On some of the items in Whitgift's tutorial ledgers, see above, chapter ii, pp. 36–39: the bills are printed at length in volumes 32 and 33 of the *British Magazine*, 1847, 1848. Other information on the daily life of students of the time is given in the statutes of 1560. An interesting list of the outfit and furniture in the rooms of a fellow-commoner in 1577 was printed by C. H. Cooper, *Annals of Cambridge*, vol. II, pp. 352–356.

buildings. It had from the first been recognized that the site offered opportunities for the erection of buildings worthy of the reputation of the College, and he realized how much the effect would depend on making the court large, and above all on keeping the chamber frontage only two storeys high with attics above. The Great Court as it stands to-day is his creation; the only obvious defect in it is the ugly block built in the south-west corner in 1770 to replace Nevile's set of combination rooms which had an elevation agreeing generally with that of the master's lodge, but enriched by a large projecting trefoil oriel. The hall, kitchens, combination rooms, and lodge form another group of buildings to which we must pay attention to-morrow: the first two of these are in the form left by Nevile. The blazoned glass in the hall and our collection of pictures in these rooms, especially the portraits of Henry VIII, Mary, and Elizabeth, all of whom have played an important part in our history, will well repay your study. Nevile also built, at his own cost, part of the court situated on the west side of the hall. This too we shall see to-morrow on our way to the library: in his day, the court was closed on the river side by a low wall, in the middle of which stood the stone gateway now used as the entrance to the College from Trinity Lane, and beyond this wall were the tennis courts and paddocks.

9. The prince of Wales, afterwards Charles I, came to the College to inspect these alterations, and he was followed later by James I. These visits are commemorated by the statues of James, his wife, and Charles placed on the west side of the Great Gate. The king was so pleased with his entertainment that he repeated his visit on three subsequent occasions. Of Nevile, one of his contemporaries wrote, "He never had his like for a "splendid courteous and bounteous gentleman," and the College still gratefully honours his memory. He was trusted and esteemed by Elizabeth, and when dying she selected him to carry to Scotland the fateful letter in which she nominated James I to succeed her. If you go into the dining room of the lodge you will see Nevile's portrait, hung in the place of honour over the mantelpiece, representing him as holding this letter in one hand.

10. You must not think that under Nevile's rule the energies of the College were wholly directed to material ends. In a memorandum of 1607 on the use of college emoluments for students, he was able to say that of the higher church officials of the day, eleven deans, seven bishops, and the two archbishops, were drawn from Trinity. In academic distinctions, in legal appointments, and in statesmanship its records were equally satisfactory: so the College was worthily maintaining its tradition

of service in church and state. Under his immediate successors the College entered on a period of steady prosperity. In the next generation, however, the shadows of the civil disturbances of the seventeenth century began to fall; theological disputes increased, scholarship in other subjects received but scanty attention, and a general slackness in intellectual pursuits was visible, though it is fair to say that among the students of the time were three or four who later deservedly acquired reputation as poets. Among the latter I particularize George Herbert, Abraham Cowley, and Andrew Marvell; Dryden entered a few years later.

11. On the outbreak of civil war the town was occupied by the parliamentary forces, troops were quartered in the College, and a good deal of damage done to the fabric. In 1644 a large number of the fellows were expelled, their places being filled by zealots of but slight education. It may be put to the credit of a few who were left, notably Duport and Ray, that in this time of stress they devoted themselves to maintaining the standard of scholarship. On the restoration such of the expelled fellows as were still alive and unmarried resumed office. They decided that there should be no retaliations, and that all those nominated to fellowships under the commonwealth should be allowed to remain, provided only they did not preach in

the chapel unless they were members of the Church of England: that was a noble reply to the wrongs suffered.

12. The College took pride in resuming at once its position in the world of letters and science, and the following years are famous for the work of Pearson and Barrow, two great divines of the time, and above all of Isaac Newton. The influence of the last-named philosopher on the studies and intellectual life of Cambridge was far reaching. His discoveries in pure mathematics, mechanics, physics, and dynamical astronomy were of the utmost importance, and made Cambridge the centre of mathematical work in England. I will show you to-morrow the rooms he occupied and in which he wrote his famous *Principia*. The staircase on which these rooms are situated has had other distinguished occupants: the rooms on the ground floor on the right-hand side on entering it were occupied by Thackeray, and subsequently by the late astronomer-royal; those on the opposite side by Macaulay; the rooms on the first floor next the gate which once had been occupied by Isaac Newton, were used later by Lightfoot, the theologian, and Jebb, the Greek scholar; and those on the opposite side by Sir James Frazer, who has done so much to investigate the beliefs of primitive man. This is an interesting group of men, but in fact

there are few rooms in College which have not been inhabited at some time by those who have made their names famous.

13. Barrow held the mastership from 1673 to 1677. On his initiative the College erected, on the west side of Nevile's Court, the magnificent library which is now stored with literary treasures. This is another building to which we must pay attention to-morrow, and with it we may associate the adjoining chambers. From the close of the seventeenth century onwards we can describe life in College, especially among undergraduates, in considerable detail. The usual age of entry had risen to seventeen or eighteen. To the dons the College offered a comfortable home until an opportunity occurred of taking a college living, and it must be admitted that some were beginning to be content to consider it as nothing more. Materials for the history of the time and the following century have been published by Christopher Wordsworth.

14. Towards the close of the seventeenth century, the number of entries fell; this was attributed, and no doubt correctly, to the rise to office in College of those fellows appointed by mandatory letters from James II—he having filled every fellowship that became vacant during his reign. The history of the Society during the early years of the eighteenth century may be dismissed with the briefest notice,

for college energies were largely occupied by domestic disputes, and the number of residents still further decreased: these misfortunes were mainly due to the scandals inseparably associated with the name of Bentley. Bentley held the mastership from 1700 to 1742: his critical work can hardly be over-praised, but his career here was marked by malversations and many dishonourable transactions. The only scholars of the time I need mention are Cotes and Robert Smith who were mathematicians of repute. The latter of these scholars, when master, did something to restore orderly government and discipline.

15. It was not until near the close of the century that the College recovered from the taint of Bentley's misrule, and scholarship again flourished within our walls: among the residents of the time was Porson, whose wit and conversation must have been delightful features of the High Table of his day—he lived in K 5, Great Court. Mathematics now afforded the chief avenue to distinction, but some acquaintance with classics and moral philosophy was also obligatory. This period is famous for the number of eminent judges educated in the College: the strict training in formal logic and geometry required for success in the mathematical tripos being especially favourable to legal work. Out of eleven such Trinity judges of the time the names

of Tindal, Pollock, Maule, Lyndhurst, Wensleydale, and Cranworth are still remembered. Socially, manners were generally coarser than at any time during the previous century or than later; though the revival of religion under the influence of Simeon did something to ameliorate matters.

16. Unlike its predecessor the nineteenth century was one of unbroken progress in college achievements and reputation. Near its commencement two internal changes of some importance were introduced in the imposition of an entrance examination test and of a limit to the number of those admitted. None the less our numbers increased, and in 1823–25, another court (the New Court) was built on the south side of that erected by Nevile. At this time, conspicuous among the resident fellows were Sedgwick the geologist, Peacock the mathematician, Scholefield, Hare, and Thirlwall, Macaulay the historian, and Airy the astronomer: it would be difficult to exaggerate their influence on the intellectual life of the College and University. The undergraduate society a few years later also numbered a group of men of exceptional power, notably Trench afterwards archbishop of Dublin, Thackeray, Fitzgerald, Monckton Milnes (Lord Houghton), Spedding, Arthur Hallam, Kinglake the historian, the three Tennysons (Alfred, Charles, and Frederick), and Thompson; while a little later came Alford, Lushington, Grote,

Tom Taylor, Burnand, and Francis Galton. Materials left by these men, and books like J. M. F. Wright's *Alma Mater*, C. A. Bristed's *Five years in an English University*, Leslie Stephen's *Sketches from Cambridge by a Don*, and W. Everett's *On the Cam*, give us full information of college life during the middle of the century. In connection with the social life of the early half of the nineteenth century I should note that athletic clubs now began to be formed—the First Trinity Boat Club, constituted in 1825, being the earliest. These societies led to the formulation of definite rules for various forms of sport, and to much more attention being paid to out-door games. The subsequent growth of organized recreations of this kind, increasingly developed in recent years, will strike the future historian as one of the outstanding features of the last century.

17. In 1840 Whewell was appointed master. He was of commanding abilities and exercised extraordinary influence: to him more than to any other single individual is due that development of scientific studies at Cambridge which has been so marked in the recent history of the University. Under him, the prince of Wales, afterwards Edward VII, was entered at the College, and later showed his appreciation of its influence by sending his eldest son, the duke of Clarence, here. Whewell erected at his own cost the two courts on the east side of Trinity Street, the

rents being used to encourage the study of International Law in the University. During his mastership the old order began to crumble, and new ideals of education, study, and research arose. The Elizabethan statutes were replaced by transitional statutes in 1844 and 1861, and these in turn were replaced by others in 1882, under which the College is now governed.

18. Whewell died in 1866, and was succeeded as master by Thompson, and he in 1886 by Butler. With their masterships we come to the affairs of today. The 1882 statutes opened a new chapter in our history; restrictions on the marriage of fellows were removed, and successful teachers thus encouraged to remain in residence; incidentally, this created a new social atmosphere. In this and other ways the conditions of academic life were considerably changed. We need not, however, shun a comparison with older times: if you want to see how freely Trinity during the late Victorian period spent itself in the public service look down any list of judges, bishops, statesmen, colonial governors, and civil servants of the time, and in all you will find many Trinity men conspicuous. Confining ourselves strictly to academic work in Cambridge and to those who have now [1906] passed away, I may mention the names of Clerk Maxwell in physics, of Cayley in mathematics, of Munro and Jebb in classics, of Thompson in Greek

philosophy, of Sidgwick in ethics, and of Westcott, Lightfoot, and Hort in theology: all of these were fellows of the College, and professors in the University.

19. This is a bare summary of a complex story. Of the spirit that actuates the College, of all that makes it a living Society, I have said little. In truth, these are incapable of analysis. The charm that the place perennially exercises on those who, generation after generation, make it their home, the affection it inspires, are intangible: they exist, there are but few members of the House who have not felt them, and perhaps that is all I need say on this aspect of our history.

PART II.

Concerning the University.

CHAPTER XI.

THE BEGINNINGS OF THE MEDIEVAL UNIVERSITY.

THE problems connected with the beginnings of the University of Cambridge and the conditions of life in its early days have always interested me. Much is uncertain and open to various readings*, but the following is a summary of the story, as it appears to me.

First, as to the site of the University. About the end of the eleventh century, Cambridge was little more than a village concentrated round St Peter's church, having separate hamlets in its vicinity, one near St Benet's church and the other at Newnham: at that time there was nothing to suggest the likelihood of its being chosen by students as a place where they might live and work in security. During the next century, however, it became of considerable importance. This was due to several causes. The chief of these were the castle erected in it by William the Conqueror to overawe the fen-men; its geographical location which gave it command of the

* Most of the known facts are given in Mullinger's excellent histories, Peacock's *Observations on the Statutes*, and Rashdall's *Universities of Europe in the Middle Ages*—but all the views of the last-named writer are not universally accepted.

river passage by which most of the traffic between the midlands and the counties of Norfolk and Suffolk went; its position as a port of entry for small sea-going vessels coming from Lynn, of which a relic still survives in a bonded warehouse on the banks of the Cam; its vicinity to Sturbridge common on which came to be held one of the chief annual fairs in the kingdom; and lastly the establishment here of the large monastic Houses of the Augustin Canons, of the Brethren of St John's Hospital, and of the Nuns of St Rhadegund: it would seem also that it became *, maybe under the authority of the secular canons of St Giles, the seat of a grammar-school or schools. By 1200 the town had spread from castle-end to where Christ's, Peterhouse, and Queens' now stand, and along the east side of the river there were numerous small wharves, locally known as hythes. The writs of Henry I and Henry II and the charter of John bear witness to its importance in their reigns, but later this tended to diminish relatively to other towns.

The Universities of Cambridge and Oxford were initiated near the end of the twelfth century, both arising in towns free from disorder and where accommodation for students was obtainable. It was a time when men of scholarly tastes, especially

* See *passim* G. Peacock, *Observations on the Statutes*, London, 1841, p. xxxv.

those resident in religious houses, were conscious of their ignorance of recent developments in theology as set out by Peter Lombard and in canon law, and were keen to study these subjects and scholastic logic. Schools to meet these needs arose in Cambridge and Oxford and became permanent. Like centres of instruction were established in other places, but for one reason or another did not survive long as degree-granting corporations.

It is not known whether the University of Cambridge began with a few teachers taking up their residence in the town, giving instruction, and attracting students and other teachers, or whether it started ready-made by a migration of a body of discontented teachers and students from some existing school. I believe the former view to be correct. If so, we may reasonably assume that a considerable proportion of the earliest adult students were previously living in monastic houses here or in the neighbouring fenland monasteries at Ely, Peterborough, or Croyland. It has been suggested that at first the lectures were given in the local grammar-schools: this is probable, and would fit in with the secular organization of the University and the fact that boys learning Latin grammar (glomerels) were reckoned among its students. Probably the movement was started with the sanction and direct encouragement of the bishop of Ely,

certainly it was not directly monastic, and most likely the teachers were secular clerks and not monks. I conjecture that at first the lecturers were strangers to the locality, but this in no way implies that a fragment of another university, students as well as teachers, migrated here as an organized body.

Whatever the origin of the University, its members organized themselves for mutual aid and protection as a *Studium* on the model of that at Paris, with which it seems later to have been frequently in touch. If we may trust ancient traditions quoted by Bulaeus and Peacock, the early University had also some connection with the studium of Orleans: this is possible but speculative. Bologna represented another type of organization which, however, was not adopted anywhere in England. The University of Cambridge existed in working order in 1209, and in my opinion its origin may be safely assigned to some time in the previous twenty years.

Of its external history during the century following its organization we know little: we read of its chancellor in 1225, of French students coming to it in 1229, of special privileges conferred by the crown in 1231 and 1251, of its recognition by the pope in 1233, and finally of a papal grant in 1318—exceptional in extent—of all rights which were or could be enjoyed by any university in Christendom.

Oxford went through somewhat similar stages. The two universities were closely connected, and by 1333 their position had become so firmly established that they agreed not to recognize any other studium in the kingdom, and in fact after that year no other university was established in England until less than a century ago.

Originally the main source of university authority was the body of active teachers (regents) acting with the concurrence of the chancellor who represented the bishop of Ely; their grouping in faculties was an obvious development, and probably took place early in the thirteenth century. Resident graduates who had ceased to teach (non-regents) were allowed a voice on matters of property, rights, and privileges. The establishment of monasteries and colleges with administrative officers tended to retain in residence graduates who were not lecturing; through them the house of non-regents grew in power, and finally in many questions obtained concurrent jurisdiction with that of the regents—the result was a very complex constitution. At first the University had no buildings of its own; the regent and non-regent houses met in St Benet's or St Mary's church, and lectures were given wherever accommodation could be obtained. After this digression I return to the position of the students in the early University.

Numerous monasteries were established in Cambridge during the thirteenth century, and from this I infer that the number of members of the religious Orders studying in the University steadily increased during that century. Of monastic Houses in Cambridge previous to the foundation of the University I have already mentioned those of the Augustin Canons, founded in connection with St Giles' church, about 1092, and moved in 1112 to Barnwell where their priory became in time one of the largest conventual buildings in England, and of the Austin Brethren of Frost's or St John's Hospital, built about 1135 on ground now occupied by St John's College. Shortly after the organization of a studium in the town, five important Orders established Houses here. These were the Franciscan or Grey Friars, who, from their first home situated near the present Divinity Schools and used from 1224 to 1294, removed in 1294 to a site now occupied by Sidney Sussex College, where their church was one of the conspicuous architectural features of medieval Cambridge; the Dominican or Black Friars, who built in 1274 on ground now occupied by Emmanuel College; the Carmelite or White Friars, who, having previously lived in houses at Chesterton and Newnham, removed in 1290 to a site now occupied by Queens' and King's Colleges; the Augustine Friars, who built, about

1290, a home on or near ground now occupied by the university examination halls and lecture rooms, in the basement of which some fragments of the old friary may be found; and the Sempringham or White Canons, who about 1290 obtained possession of St Edmund's Priory which had been built before 1278 near the Trumpington Gate. The Houses of the Bethlehem Friars, opened in 1257, of the Friars of the Sack, opened in 1258, and of the Friars of St Mary, opened in 1273, were suppressed in 1307, and probably were never important foundations. I believe that the presence in Cambridge of these great establishments, always housing a certain number of students, gave stability to the nascent University, and tended to prevent its dissipation in times of stress: this is a point in our early history which is sometimes overlooked. Students from Houses of the Benedictine or Black Monks were also sent to Cambridge, but until 1428 they seem to have had no special home of their own: in that year the Order built for them a hostel known as Buckingham House which now forms part of the first court of Magdalene College.

These conventual Houses were outside town and university authority, but their wealth and position made them influential. Striking evidence of this is afforded by the facts that they secured to their members the right to proceed direct to degrees

in divinity without graduating in arts—a privilege not granted to students in law or medicine—and that at every congregation of the University the senior religious doctor present could veto the offer of any grace and so block all business. These privileges suggest that monastic students were the dominant class in the early days of the University. They were, however, naturally distrusted by other students, for admittedly they owed allegiance to outside bodies, and no man can serve two masters. By the end of the thirteenth century the monastic movement had spent its force, and thenceforth the religious students took a constantly decreasing share in university activities; of course they disappeared at the reformation, when the monasteries throughout the country were suppressed.

I come next to the question of the secular students in arts, most or all of whom would be clerks in major or minor orders. Rejecting the migration theory of the origin of the University, I do not suppose that in its earliest days these secular students were numerous, for the vicinity cannot have provided many such men, but as soon as the University acquired reputation as a centre of higher teaching they would be attracted to it from a wide area, and their numbers would be increased by many glomerels who would continue their course as students in arts. In the course of the thirteenth century

these secular students became strong enough to assert themselves against the position and privileges assumed by the religious students, and after that century graces were constantly passed (*ex. gr.* in 1303) to prevent monastic interference in academic affairs, or (as in 1369) to limit the number of monastic graduates.

A non-graduate student in arts was, before admission, expected to know Latin, and, on admission, apprenticed to a master or doctor who acted as a tutor in scholastic matters: in 1276 this system of apprenticeship was made compulsory. The full medieval course lasted several years. Students who entered as boys stayed, if they took the full course, till they were grown men, gradually taking up teaching as part of their course of study. The bachelors may have assisted in the education of the younger arts students and of the glomerels who are mentioned below, but normally instruction in the arts course was given by masters, and in the higher faculties by doctors. The degree of master was a license to teach, and newly created masters were required to teach and to reside for two years (or later at least one year) for that purpose. This pre-reformation scheme is in marked contrast to the modern plan where the students enter as young men, all of about the same age, with a normal course lasting three years or so, and with their

studies sharply differentiated from those of a limited number of post-graduate and research students and of a separate body of teachers. Mullinger estimated that during the mediæval period the number of resident regents varied from one hundred to two hundred, and the number of students (apparently exclusive of monastic students) never exceeded two thousand of whom the great majority were of humble birth; no doubt there were wide variations in the numbers at different times.

The history of Guilds in the University cannot be given with any certainty. It may be that in the early years of the University most secular students and teachers from any particular locality were associated together as a guild, and perhaps every student on arrival was expected to join his local guild, and through it become a member of the University. The guilds imposed on their members definite rules for their conduct in relation to one another, and enforced such regulations by means of money fines, refusal of assistance, and in extreme cases expulsion. The relations between the members of different guilds were, however, often unfriendly or worse; in particular there was constant friction between the guilds connected with localities north and south of the Trent. It has been suggested that at one time one of the proctors represented the cis-trentine guilds and the other the trans-trentine guilds: this

seems to have been the case at Oxford, but there is no evidence of such a custom at Cambridge where, according to Peacock, these trentine disputes were less violent than at the sister University.

We may take it that the master to whom a secular non-graduate student was apprenticed looked after his studies, and probably officers of the guild to which he belonged looked after him when sick or maltreated. In other matters, however, he was left to take care of himself, and thus was constantly liable to extortion. To meet this evil, the University early obtained powers enabling it to settle, without consulting the citizens, various local matters such as the prices of lodging and food.

Besides students in arts there was also another class of secular students consisting of boys, known as glomerels (grammarians) and rhetoricians, who were under a special officer of the University called the master of glomery. I conjecture that originally these were the boys at the local grammar-schools, that after the foundation of the University such boys were regularly treated as glomerel members of it, and that for this reason we hear nothing more of the local grammar-schools which had at first supplied them: most students of this type must have lived at home and come from the town or immediate neighbourhood. I suppose that in later times the number of glomerels was swollen by the

entry among them of students who had come to Cambridge, and were found to be ignorant of Latin grammar, and so inadmissible to the arts faculty.

The chief study of a glomerel was Latin grammar, and on attaining reasonable proficiency in it he could change over to the arts faculty if he wished. If a student continued in the glomerel faculty, the degree of master in grammar (or rhetoric) was open to him, but in processions of the University, such graduates took a lower place than students in arts, and their inferior position was emphasized by a statute which, while regulating the attendance of regents at the funeral of a regent master or student in arts, stated that graduates and scholars in grammar were not entitled to such recognition—*Illis tantummodo exceptis, qui artem solam docent vel audiunt grammaticam, ad quorum exequias nisi ex devotione non veniant supradicti.*

The ceremony of graduation in grammar has often been described: it involved the beating openly in the schools of a shrewd boy obtained by the university officers for the purpose, and the presentation to the new master of a ferule: this suggests that the course was regarded as a training for a schoolmaster's career, it also facilitated admission to orders. As time passed, the glomerels, originally forming a large and important section of the University here and at Oxford, decreased in numbers,

and in the latter half of the fifteenth century they ceased to be of much importance in academic life. The faculty of rhetoric was constituted on similar lines to that of grammar, and practically treated as part of it. The last degrees in rhetoric and grammar of which we have notice were conferred in 1493 and 1548 respectively: probably the office of master of glomery fell into disuse about the beginning of the sixteenth century, though it is possible that it was held by Sir John Cheke as late as 1547.

The evils consequent on allowing inexperienced students, some of whom were quite young, to fend for themselves in all matters outside the schools were obvious, and it was not long before steps were taken to improve matters by the foundation of colleges and the licensing of private hostels.

Colleges were designed for selected scholars partly to provide assistance for them, and partly to protect them from pressure to join a monastic Order: the advantages offered being shelter, a common sitting room properly warmed, regular meals, the use of books, and general supervision. The earliest attempt to provide aid and protection of this kind for certain scholars was made, about 1275, by Hugh de Balsham, who arranged for their reception as members of Frost's Hospital; but there were constant quarrels between the two sides of the House, and in 1284 he dissolved the union and

moved the secular students to a building (Peterhouse) of their own. Other similar foundations were soon created: the King's Scholars (later incorporated as King's Hall) in 1317, Michael-House in 1324, Clare in 1325, Pembroke in 1347, Gonville in 1348, Trinity Hall in 1350, and Corpus Christi in 1352. Every new college that was established provided fresh definite ties with the locality, and rendered less likely the break-up of the University and the scattering of its members—a serious risk to which in early days it was always subject. Then came an interval of nearly a hundred years, but in the fifteenth century the collegiate movement recommenced, and we have the foundation of God's House in 1439, of King's in 1441, of Queens' in 1448 and 1465, of St Catharine's in 1473, and of Jesus in 1496. In the sixteenth century we have the larger and more ambitious foundations of Christ's in 1505, St John's in 1511, Magdalene in 1519, Trinity in 1546, Emmanuel in 1584, and Sidney Sussex in 1596.

The colleges were intended for picked scholars. In the course of the fourteenth century the problem of the care of other students was taken up, and they were forbidden to live in lodgings selected by themselves and under no external supervision. To provide for them, the University licensed private hostels which were managed by masters of arts on lines somewhat similar to boarding houses in public schools

to-day. Thenceforth throughout the middle ages the majority of undergraduates resided in these hostels. Caius gave the names and sites of twenty-seven private hostels which he had known and all of which closed their doors during his life, the last in 1540: Fuller enumerated thirty-four hostels and two "inns" while his editor mentioned fourteen other hostels, but some of these certainly ought not to be included under the term. Perhaps we may say that the number open at any one time rarely exceeded thirty or fell short of twenty: some were cheap, some expensive; some were well managed, others not so. After the development of these hostels the guilds decreased in importance, and finally disappeared.

With the establishment of colleges and private hostels the University was fairly launched on its career in a form which lasted till the middle half of the sixteenth century. My object was to state how, in my opinion, it originally took shape, and I do not propose here to follow its history further.

CHAPTER XII.

DISCIPLINE.

THIS paper contains some extracts from my note-books on the way in which university and college discipline was maintained in former days at Cambridge. The records on the subject are scanty, but I think the facts are worth putting together in a connected form. There is no reason to suppose that the practices of different colleges varied materially, and if in the later period I have taken examples from the records of Trinity it is only because I have had easier access to them.

In the history of university discipline and social customs abrupt changes are not to be expected, and none such are noticeable in the transition from the medieval period, *circ.* 1200 to 1525, through the renaissance, *circ.* 1525 to 1640, and the period of stagnation, *circ.* 1660 to 1820, to the present age of reconstruction and extension. I begin naturally with discipline in medieval Cambridge.

In the early days of the University the students lodged in the town and were of all ages from twelve or thirteen upwards. Except in strictly academic matters, there was little or no supervision of their conduct, and, outside the schools, grave disorders

were common; the University, however, claimed power, when it chose, to take cognizance of all offences contrary to good manners, and at any rate in later days did so in serious cases. The regulations at Cambridge and Oxford were so similar that we may fairly draw illustrations from either University, and the records of the chancellor's court at Oxford in the fifteenth century show that fines, imprisonment, and, in extreme cases, expulsion were customary penalties for serious offences against university regulations and customs. I have no doubt that earlier records, if extant, would be of the same general character.

The first college to be founded at Cambridge was Peterhouse which took its final form in 1284, and during the next century several other similar Houses were established: these societies were intended for selected scholars. The problem of the control of other students was met in the course of the fourteenth century by preventing them from living in private lodgings chosen by themselves, and thenceforth, throughout the middle ages, those who came from a distance were generally required to reside in private hostels run by masters of arts on lines somewhat similar to boarding houses in public schools to-day. Besides the lay and secular students accommodated in colleges, private hostels, and at their homes, there were also in the medieval University a considerable

number of "religious" students who were housed in monasteries or monastic hostels. Some of the colleges in later medieval times received as paying members a few wealthy pensioners, parochial priests in middle life, and even monks from distant convents, but probably the number of such favoured students was never large. With the establishment of colleges and the organization of private hostels discipline improved; inside their walls as well as in the monastic hostels it is probable that order was well maintained, but outside them, at least among the students at private hostels, discipline was left to the university authorities who did little or nothing in the matter.

The colleges took seriously their responsibilities for discipline, and all things contrary to good manners and morals were prohibited. For the gravest offences, such as contumacy, crimes of violence, and heresy, expulsion was usually ordered. Among less serious delinquencies, explicitly forbidden and therefore we may assume not unknown, were bringing strangers into the house, sleeping out, and absence without leave; using insulting language, drunkenness, gambling, and frequenting taverns; keeping company with loose women; throwing missiles and carrying arms; and the keeping of dogs, hawks, falcons, and ferrets. In the regulations of many colleges, a course of study was indicated, and directions

given that idleness was to be punished. Regular attendance at religious exercises was assumed, and was explicitly directed on certain occasions: I suppose that students performed such duties without much external pressure, and I know no record of the infliction of any penalty in early times for non-attendance. In the middle ages Latin was the language generally enforced, though occasionally French was permitted; this remained the rule until the seventeenth century. Conversation during dinner and supper was forbidden in many colleges, and of course was impossible in those cases where some book was then read aloud. At King's College, jumping and ball throwing, and at Clare College meetings in bedrooms for feasting and talking were also forbidden. At a somewhat later date Caius ordered his students to be in bed by eight o'clock at night, but they made up for this by rising very early in the morning. In general the punishment for minor faults was left to the discretion of the authorities. This was only reasonable, for a medieval college was a mixed community of lads and men, the members being of all ages from about fourteen or fifteen upwards; and rules enforced on boys of fourteen could not be applied to men of twenty-three or twenty-four, who were in fact already taking part in the teaching of the junior scholars.

For all members, the ultimate penalty for the gravest offences was expulsion. For less serious misconduct, fines, restrictions on the food supplied, impositions, and confinement within the walls, are believed to have been common penalties, at any rate for adolescents; but, as I explain below, I think that corporal punishment was constantly inflicted on non-adults in lieu of a fine, which indeed boys would have had considerable difficulty in paying. As far as the younger students and the bachelors at colleges were concerned the extant regulations in regard to their exercises, amusements, incomings and outgoings, suggest that they were treated much like the junior and senior boys in a rather strict public school in the first half of the nineteenth century; and perhaps the senior graduate members were treated somewhat like residents in colleges at the same period.

Membership of a college was a privilege confined, in general, to scholars specially nominated, and no doubt the standards of work and discipline there were higher than in the private hostels. Naturally we know less of life in these hostels, but it is likely that disciplinary rules were originally made by or with the approval of the elder residents, and that the normal discipline in them was of the same general character as that exercised in colleges, though, as the members paid for themselves, money fines were

possible and usual penalties, especially in the case of the older members. There must have been more variety in the discipline of hostels than of colleges, and we may safely say that some hostels were well conducted, others not so.

It is possible that finally the University claimed the right to examine and supervise the internal regulations of the hostels. A set of rules, thus enforced on an unendowed hall at Oxford in the fifteenth century, has been discovered and printed by Rashdall: they do not differ much from those usual at a college, except that some of the penalties specified are pecuniary, and that the principal was given explicit permission, if he wished, to flog a student, even though the lad's own master (*i.e.* the master to whom he had been apprenticed) had certified that he had already corrected him or was willing to do so.

Was corporal punishment commonly used in medieval times? Until recently it was accepted without argument that this was the case; and certainly in the fifteenth century and later when we get detailed information on the subject, the younger students were subject to it. Rashdall, however, has argued that the absence of its mention in earlier times implies that the birch was unknown in the ordinary university regulations till towards the end of the sixteenth century or later, though he admits in various places that glomerels were liable to it: his

authority is accepted by Rait. It is true that in the statutes given in the thirteenth and fourteenth centuries, birching is not mentioned explicitly, but, since the punishments for petty offences are rarely specified in detail, this proves nothing. In the fifteenth century corporal punishment is mentioned as a recognized penalty. For instance, the statutes given by Henry VI to King's College, Cambridge, prescribed that scholars and young fellows might be punished by stripes, and a year or two later, the statutes of Magdalen College, Oxford, directed that the demies should be subject to flogging. In later regulations of various colleges, to some of which I refer below, whipping is mentioned as a recognized punishment, but often as one to which only the younger students were liable.

I have already argued that in medieval colleges discipline must have varied according to the age of the offender, and I conjecture that adults were never regularly subject to corporal punishment, but that boys were always so, and that the use of the rod was regarded as needing no explicit statutable authority. Its employment was no strange thing, for adult offenders against the law, apprentices, and boys at school, were all flogged at times. And what else, it has been well asked, could the authorities do with a troublesome boy of fourteen? In general a fine was impossible for he had no pocket-money.

Most of the colleges were designed for poor scholars, and in such foundations usually the allowance for commons was so small that without risk to health any reduction for more than a day or two was difficult; little leisure was allowed for recreation or exercise, and thus heavy impositions were impossible; and confinement to the precincts of the House was so common that gating was no punishment. A lad of seventeen or eighteen had more liberty and privileges, and in general on reaching that age was as safe from the chance of corporal punishment as was a boy of the same age at a public school fifty years ago.

Somewhat similar arguments apply to the private hostels, and the regulations of an unendowed hall at Oxford, to which I have already referred, show that the use of the rod or birch was recognized there. If as I suppose is likely, Clement Paston was at a private hostel, we have a definite instance of the similar use of the rod at Cambridge, for among the Paston letters is one dated 28 January 1458 from Dame Agnes Paston, about her boy, Clement, in which she says "prey Grenefeld to send me feythfully word by "wrytyn who (how) Clement Paston hathe do his "dever i lerning. And if he hathe nought do well, "nor wyll nought amend, prey him that he wyll "trewly belassch (*i.e.* flog) him tyll he wyll amend, "and so ded the last Maystur and ye best, that ev'

"he hadd at Cambrege." Clement was born in 1442, so he was then fifteen years old.

I asserted above that school-boys in the middle ages were liable to the birch or cane. I suppose this will not be questioned, but by way of parenthesis I add that this liability seems to have been a well-established practice for centuries. It goes back to classical times for in the schools of Rome the less serious offences were punished by the cane applied to the hand, and graver faults by the birch applied to the back; and there is a curious fresco at Herculaneum of the application of the latter to a boy, horsed by one schoolfellow and with his feet held by another. The royal whipping boys in the courts of Western Europe remind us that, at least vicariously, princes were subject to this discipline as well as commoners.

In more recent times the deeds of Busby and Keate at Westminster and Eton respectively are preserved in tradition, while the reputation of Udall at an earlier time, *circ.* 1530, may be gathered from the remarks of Thomas Tusser, a choirboy at St Paul's Cathedral, who subsequently went to Eton: Tusser says, "From Paul's I went, "to Eton sent, To learn straightways the Latin "phrase Where fifty-three stripes giv'n to me, at "once I had. For faults but small, or none at all, "It came to pass thus beat I was." The similar

vigour of Udall's successor, Cox, is mentioned by Ascham. In short, the old saw: "Spare the rod, "and spoil the child, Solomon said in accents mild, "Be it boy or be it maid, Whip 'em and wallop 'em "Solomon said" represented the current belief and practice of former days; though the dictum attributed to that king is stronger than the passage in Proverbs, xiii, 24 warrants.

In the sixteenth century the colleges opened their doors to the admission of pensioners and fellow-commoners. Collegiate teaching and arrangements were superior to those of the private hostels, and before the middle of the century the latter had disappeared: their revival was rendered impossible by a regulation that membership of the University should be confined to those who were members of a college. Shortly afterwards it became the custom not to require residence for degrees after the baccalaureate, and thus a course limited to three or four years became usual for the average student. These changes were of far-reaching importance.

In the course of this century new statutes were given to the University and colleges, and subsequently we possess records, fairly complete, of the domestic life of students. Early in the following century, the average age of entry began to rise, and before its close, it had become common for students to defer entry until about seventeen years old.

University decrees regulating the conduct of students in many matters now appear, notably one in 1595 by Goad, then vice-chancellor, which gives a summary of what was expected. Expulsion, suspension from degrees, and refusal of leave to graduate until after a specified time, were normal punishments for serious offences, for trivial misconduct fines are now constantly prescribed, and physical punishments for non-adults are also directed in many cases.

In colleges, the Tudor statutes generally enjoined good conduct on all students. The regulations about the punishment of offences were mostly concerned with grave matters for which admonitions, and finally expulsions, were the recognized punishments. Penalties for the non-performance of religious exercises now appear: thus, at Christ's College, Cambridge, and at Balliol College, Oxford, whipping was prescribed as a penalty for absence from chapel, though probably restricted to the younger students; so too at Peterhouse, students over eighteen who were absent from prayers were to be fined, while younger students so offending were to be deprived of dinner, and if persistent in their neglect flogged in hall.

As in medieval times, the authorities were generally left a free hand in settling the regulations for the maintenance of normal discipline. Probably

fines, impositions, restrictions on the food supplied, and gatings continued to be ordinarily used. Reading the bible aloud at meal times in hall, dining apart on bread and water, and being deprived of commons, are definitely mentioned in the 1520 statutes of St John's College, Cambridge, as possible penalties; similarly at Corpus Christi College, Oxford, being compelled to eat alone at a small table in the middle of the hall and restriction to bread and water are specified as suitable punishments.

The use of the birch was now constantly prescribed, though probably in practice always confined to lads. Thus, at Christ's College, Cambridge, a whipping for lads and a fine for adults; and at Brasenose, Oxford, a fine or a flogging, at the discretion of the principal, were statutable punishments for various faults, including at the latter College the making of odious comparisons in conversation. At other Houses too, for instance, at Corpus Christi, Oxford, Wolsey (Christ Church), Oxford, Trinity College, Cambridge, and Gonville and Caius, Cambridge, the use of the cane or birch is sanctioned in the case of lads. I have no doubt this was also the general rule in earlier days, and nothing in the Tudor codes indicates that any material change was made in the existing practice, but on the whole I conjecture that the regulations were more humane, and I am inclined to think, contrary to Rashdall's

view, that discipline was less severe after the renaissance than before it. In colleges the deans were and are the chief officers responsible for discipline; in the University, the proctors.

A part of the fifth chapter of the Trinity statutes of 1560 relating to the office of deans may be summarized as indicating what was then customary, or at any rate desired, in the matter of chapel attendance and in certain questions of petty discipline. The statute, which is in Latin, is to the following effect:

In every community regard should be paid to correctness of morals and general probity of life, accordingly there shall be two deans to give their sedulous attention to these objects; at least one of such deans shall be a bachelor of divinity and chosen from the eight senior fellows, and the other, a master of arts or a bachelor of divinity.

The deans shall provide for the fitting performance of public worship; see that all fellows, scholars, pensioners, sizars, and subsizars attend on Saints' days and Sundays at morning and evening prayers, the litany, the communion, and sermons; and see that the same persons are on other days regularly present at prayers between five and six o'clock in the morning. Every fellow who is absent shall be fined three half-pence, and if he comes in late or goes out early, one half-penny. The fine for a bachelor scholar who is absent shall be one penny, and for one who comes in late or goes out early, one half-penny. Every undergraduate scholar, and every pensioner, sizar, and subsizar who is absent shall, if his age exceeds eighteen years be fined one half-penny, and if he comes in late or goes out early, one farthing; but if such student has not attained this age, he shall be chas-

tised with rods in the hall on the following Friday. Those are to be deemed as coming late who at evening prayers arrive after the first psalm; at morning prayers, after the *Venite*; at the Litany, after the words *O Holy Blessed and Glorious Trinity*; and at the communion service after the recital of the commandments: anyone who, during service, remains in the antechapel is to be punished as if he had been absent.

Each week on Friday, at seven o'clock in the evening, the deans shall chastise non-adult offenders. All scholars (bachelors excepted), pensioners, sizars, and subsizars shall be present during the infliction of such corporal punishment, and anyone who does not answer to his name when called, and does not stay until all the punishments are finished, shall, if an adult, be fined one penny, and if non-adult be flogged on the next day.

Each week on Thursday, the deans shall appoint two monitors from among the bachelor scholars for noting offences of bachelors; and six monitors [from among the undergraduate scholars], two for noting offences of undergraduates at public worship, and four for noting those who fail to speak Latin: the monitors shall prepare lists of all who offend in these particulars. The deans shall also appoint each week six scholars and four sizars for service at the fellows' table, and one sizar for the organ.

In order to ensure the decorous celebration of public worship, the deans shall bring with them to the first vespers of every festival a written schedule of the duties of everyone concerned in that festival, and shall further appoint an inquisitor who shall remind everyone of the duty so assigned to him. Anyone who shall fail in such duty shall, if a non-adult, be whipt, and, if an adult, be fined fourpence.

One half of all fines inflicted shall go to the College, the other half shall be kept by the deans.

The Tudor statutes generally remained in force till the middle of the nineteenth century, though in time the practices of the colleges came to differ materially from what was there directed. Briefly we may say that in the sixteenth century the standard of medieval discipline and study sank; but in the early years of the seventeenth century things improved until the civil disturbances threw academic work into confusion. With the establishment of the commonwealth the age of entry rose, and thus the use of corporal and puerile punishments died out, and with the disappearance of boys as members of the University, rules intended only for young lads became obsolete and inoperative. Most of the students henceforth were adolescent. The few who were younger were dealt with like school-boys, but the comparison is rather with school-boys of recent years than with those of their own period.

As far back as Sir Simon D'Ewes's time—and he entered Cambridge in 1618—the majority of the students were regarded as responsible, and capable of conducting themselves rationally. They reflected the virtues and foibles of their time, but they were a select class, and compare favourably in manners and morals with their contemporaries elsewhere. Almost without exception they speak warmly of their development in college from lads to young men, of friendships formed with their elders as well as their

contemporaries, of the abiding influence of the place, and of their affection for it.

From the restoration to the regency was a period of stagnation. Discipline deteriorated, and if we may trust contemporary accounts drunkenness and immorality were far from uncommon. No doubt there were always some residents who maintained high traditions and ideals, but on the whole the records of the social life prevalent then at Cambridge and Oxford make but sorry reading.

The sixteenth century codes indicate lofty aims, but statutes and rules are not always observed literally, and it may be thought that those mentioned represented only old customs, perhaps already obsolete, or what was deemed desirable but was not enforced. It may be well then to turn to contemporary evidence, to regulations passed on specific occasions, and to records of definite punishments—though we can expect the latter to have been preserved only in grave cases, and cannot hope to learn from them much about discipline in petty matters.

Contemporary evidence would serve us best if we could get it, but the diarists and letter-writers are mostly silent on the subject. From this, however, I conclude that generally the disciplinary regulations were thought sensible. Life in the University may have been hard and probably was so, but I do

not believe that discipline was unreasonable. All the evidence is to the contrary. Thus the above-mentioned Tusser, a student of no special brilliancy, who entered at Trinity Hall in the early half of the sixteenth century speaks thankfully of leaving school, and says: "To Cambridge thence... I got at "last, There joy I felt, there trim I dwelt, There "heaven from hell, I shifted well, With learned men, "a number then, the time I passed."

Coming now to definite punishments, I mention successively corporal punishments, such as birching, the use of the stocks, and stanging; fines, direct and indirect; deprivation of days or standing; gatings; impositions; declaratory confessions; and rustications and expulsions.

Birching, Flogging. Birching remained a recognized punishment for the younger students in the sixteenth and seventeenth centuries, but I think that in practice it was not often inflicted except on boys. One or two examples of orders directing it will suffice.

On 8 May 1572, the Vice-Chancellor, Whitgift, issued an order which is so detailed that I write it at length. Here it is:

> If any scholar shall go into any river, pool, or other water in the county of Cambridge; by day or night, to swim or wash, he shall, if under the degree of bachelor of arts, for the first offence be sharply and severely whipped publicly

in the common hall of the College in which he dwells, in the presence of all the fellows, scholars, and others dwelling in the College, and on the next day shall be again openly whipped in the public school, where he was or ought to be an auditor, before all the auditors, by one of the proctors or some other assigned by the Vice-Chancellor, and for the second offence every such delinquent shall be expelled his College and the University for ever. But if he shall be a bachelor of arts, then for the first offence he shall be put in the stocks for a whole day, in the common hall of his College, and shall, before he is liberated, pay 10s towards the commons of the College, and for the second offence shall be expelled his College and the University. And if he shall be a master of arts, or bachelor of law, physic or music, or of superior degree, he shall be severely punished, at the judgment and discretion of the Master of his College.

From this it is clear that at that time undergraduates, even of mature age, were liable to be flogged as a part of the ordinary discipline of the University and College, but probably it was unusual to inflict the penalty.

Thirty years later, after the disturbances of 20 February 1607, following the performance of a comedy in King's College, an order was issued that thereafter every ringleader in any similar disturbances should be banished from the University: and every less responsible offender should, if a graduate, pay for the harm done, be suspended from his degree, and for one year refused leave to take a further degree; and if a non-graduate should for

one year be refused leave to graduate, and further, if non-adult, be corrected in the schools by the rod, and, if adult, make an open confession of his guilt in the schools: also the offender if not a scholar should be set in the stocks at the bull ring in the market place. Here, it will be noticed, the punishment by the rod is restricted to those non-adulti.

In a list of punishments inflicted at Corpus Christi College in 1622, quoted by Lamb, admonitions, fines, suspensions, and whippings are mentioned. Even as late as 1648 there is a record of "Benton per Tutorem suum Magistrum Johnson "virgis castigandis."

In 1648 an undergraduate bible-clerk of Peterhouse, age about seventeen, Tobias Conyers by name was "corrected publicly"—which, I take it, means flogged—for toasting the king. But times were abnormal, and if Conyers ventured into the stirring field of politics, he had to take the consequences.

The liability to a flogging still existed after the restoration. Thus in the *Poor Scholar*, by R. Nevile, London, 1662, there are references to it in Act ii, Scene 6, and Act v, Scene 4, as being still in use in colleges though whether adults were so liable is uncertain. If the author's statements refer to contemporary matters and are trustworthy it

would seem that the punishment was then common, the culprits being mounted on barrels, and the flogging inflicted at the butteries. The birch was also still occasionally used in university discipline, for on 20 March 1674, the vice-chancellor ordered Ellethorpe of St John's, and Hodges of Sidney Sussex to be whipped for having been rude to the junior proctor, Peter Parham, of Caius College: neither of the offenders had matriculated.

These references provide the strongest evidence with which I am acquainted for the assertions that flogging was a usual punishment at Cambridge during the seventeenth century. There is a widely spread tradition that when at Christ's College, Milton was flogged, but Peile has shown that there is no satisfactory evidence for it, and it is intrinsically improbable. In a disciplinary order of Corpus Christi College in 1684, the only punishments mentioned are discommonsings, admonitions, rustications, deprivation of seniority, and refusal of college testimonials, so, comparing this with the orders of 1622 and 1648 which I have quoted above, perhaps we may take it that the use of the rod there had become obsolete.

The above extracts are sufficient to show that corporal punishment was recognized under the Elizabethan codes, though it seems probable that public opinion was against its use, unless the students

were quite young; perhaps this was always the practice, and thus, as the age of entry rose, the use of the birch died out. Incepting bachelors and senior students were usually punished for serious offences by deferring their admission to degrees, loss of terms, or rustication: being adult, they were in effect regarded as not subject to corporal punishment.

Stocks. Stangs. A couple of other physical punishments—ignominious and sometimes painful—may be mentioned in passing.

One of these was confinement in Stocks. To this allusion has already been made in the orders of 1572 and 1607. Another instance is to be found in the records of Corpus Christi College, where about 1580, one of the students, Tobias Bland, who had libelled the master, was compelled to confess his fault publicly, next put in the stocks, and then expelled. In the old dining hall of Trinity College there were stocks in the minstrel's gallery, but there is no evidence that they were re-erected when the hall was rebuilt in 1605; perhaps the punishment was then becoming unusual, though against this may be set the fact that there are references to the college stocks in 1610 at King's, in 1625 at Christ's, and in 1642 at Emmanuel. The stocks at King's and Emmanuel, like those at Trinity, were in the hall. Allusions to their use are rare. The punishment

continued to be inflicted after the restoration, for on 10 April 1680, Thomas Grigson, who had been rude to the junior proctor, Thomas Verdon of St John's College, was ordered to be "sett fast in "the stocks, by the heeles for one whole houre, which "was presently effected by the Constable of Saint "Bennett's Parish in Cambridge." He had partially atoned for his offence by begging pardon on his knees, and so escaped a worse punishment.

The Stang was a wooden pole on which the luckless culprit was tied, and carried ignominiously through the courts of his college. In John Ray's *Collection of English Words not Generally Used*, London, 1674, it is said that the "word is still used "in some colleges in the University of Cambridge; to "stang scholars in Christmas, being to cause them to "ride on a colt-staff or pole for missing of chappel." References to the place where the pole was kept occur in the account-books of Trinity, St John's, Queens', and Christ's. In Parne's unpublished manuscript history of Trinity College, allusion is made to stanging as though at the beginning of the eighteenth century it had become recently obsolete. From his language it would seem also that undergraduates themselves inflicted the punishment on those of their members who declined to take part in the Christmas revelries.

Fines. Pecuniary fines have been used to

enforce discipline from the earliest times by the University as well as by the colleges: after the renaissance, the increasing age and means of students made fines a suitable penalty for many of the less serious offences, such as participation in forbidden amusements, visits to places out of bounds, walking across the grass in college courts, smoking in public places, the failure to wear academic dress when required, non-attendance at lectures, chapel, hall, etc. Probably grave misconduct was punished otherwise, or by fines combined with additional penalties. A fine, if heavy, presses unequally on men of different means; and thus a system of fines on a fixed scale cannot be regarded as equitable. Fines are still used as penalties for the infraction of rules.

Discommonsing. Dissizaring. To be put out of commons was a well-recognized penalty, applicable chiefly to scholars and sizars, part of whose emolument consisted of a right to dine in hall and, in some cases, to have commons (bread, butter, and beer) to a limited amount each day. To deprive such a student of the right to dine in hall or of his commons was equivalent to a pecuniary fine, and in the case of a poor scholar might be a severe, though not a satisfactory, punishment; probably a modicum of bread and beer was supplied to students even when discommonsed. In some comments, published

in 1768, on university education at Cambridge, discommonsing is described as "one of the most "idle and anile punishments...inflicted rather on "the parent than on the young man, who being "prohibited to eat in Hall is driven to purchase "a dinner at a tavern or coffee house."

Here is an example of an order of discommonsing at Trinity in the seventeenth century: "Agreed that "Cassill should be punisht a monthes commons.... "Agreed at the same time that Pepys besides a "monthes commons, should have an admonition "and pay the charges of the chirurgion for the "healinge Cassil's head w^{h} he broke with a key." (Conclusion, 1 August 1643.) Its preservation is due to the fact that Pepys' punishment was combined with an admonition, and evidence that an admonition had been given might be required if subsequently a question of expulsion arose. The culprit in question was Thomas Pepys (B.A. 1645) and not the Samuel of immortal memory.

In 1815, Mansel, master of Trinity and bishop of Bristol, was accustomed to put men out of sizings and commons if they appeared in hall in trousers instead of knee breeches, and it would seem then that to be put out of sizings further deprived the student of obtaining private supplies from the college kitchens. Half a century ago the penalty was still in use at Trinity, being imposed on

scholars in waiting, who failed to appear after hall to say grace.

Loss of Days. To qualify for a degree and for an emolument, it is and has been generally necessary to keep a certain number of days by residence in each of certain specified terms. At one time a common form of punishment was to cancel a certain number of days already kept. Thus the student would be obliged to stay at Cambridge for so many additional days to make up for the requisite number which had to be kept in the course of that term. In the seventeenth century the authorities went further and sometimes cancelled terms that had been kept. I believe this form of punishment has long been obsolete.

Gating. Walling. Continuous confinement within the walls of the college (walling) or confinement during certain hours (gating) was another form of punishment. A case of walling occurred at one of the smaller colleges in Cambridge in 1872, but I know of no more recent instance. Gating is still in force. It causes some social inconvenience. As far as it goes, it promotes regular hours and economy, and it has no indirect ill-effects. Accordingly it serves well to mark dissatisfaction and act as a warning.

Here is an old-time example from the records of Trinity, 19 July 1652, of the infliction of this and

other penalties interesting from the name of the scholar on whom it was inflicted:

> Agreed that Dryden be put out of commons for a fortnight at least, and that he goe not out of the colledg during the time aforesaid, excepting to sermons, without express leave of the master or vice-master; and that at the end of the fortnight he read a confession of his crime, in the hall, at the dinner time; at the three fellowes tables.

His offence was disobedience to the vice-master, and his contumacy in submitting himself to discipline.

Impositions. Another tolerably obvious punishment was the setting of impositions. The imposition might be the learning of lines by heart or the delivery of a declamation on some given subject, or the production in writing of so many lines of a classical work or of an analysis of some book. Impositions in writing were constantly done vicariously, and if so, the punishment was little more than a fine: apparently this abuse of the practice was well known.

The tasks set were very heavy. In the *Gradus*, 1803, the learning by heart of the first book of the *Iliad* is mentioned as a possible, though very severe imposition. Similarly, according to J. M. F. Wright, a thousand lines of Homer would have been regarded in 1815 as an unusually sharp punishment, but such as might have been given in lieu of rustication. Other impositions mentioned are the learning by

heart of a satire of Juvenal, and the production of an analysis of Butler's *Analogy*.

At Trinity the deans were provided with long sheets of paper on which were printed in double columns forms such as the following:

...to transcribe...lines of Virgil's Aeneid, beginning at line...book..., and to deliver it to the Junior Dean after morning Chapel on Tuesday.

...to transcribe...lines of Homer's Iliad, beginning at line...book..., and to deliver it to the Senior Dean after Morning Chapel on Thursday.

...to repeat...lines of....by order of the Junior (or Senior) Dean.

These were filled up by the deans, cut off, and distributed by the chapel-clerk to the men concerned. Customarily in Trinity the senior dean gave impositions from the *Iliad* to be delivered on a Thursday, and the junior dean from the *Aeneid* to be delivered on a Tuesday. Forms for putting men out of commons, and admonishing them were printed in the same way on sheets, to be used as occasions arose.

Impositions were set at Trinity as late as 1830, but I believe the custom had died out before 1840, though I am told it was still used in certain Cambridge colleges as late as 1855. At Oxford the practice continued rather later and indeed at a few colleges seems to have been in force till near the close of the nineteenth century, for Rashdall, writing

in 1895, speaks of the practice as having been in force there until recently.

A century ago there seems to have been a sort of recognized scale of penalties for cutting lectures or chapel. First, a reprimand was given at an interview or sent in writing by a servant; second, an imposition was set; third the offender was deprived of commons and sizings. If these steps were ineffective, the matter might be regarded as a serious offence against college discipline, and lead to "hauling" by the tutor, a gating, an interview with the master, a formal admonition, and in extreme cases to rustication.

The theory of these petty punishments was set out by Whewell in his *Principles of English University Education*, 1837. A punishment, according to him, was to be regarded as the visible expression of college dissatisfaction with certain conduct: as an infliction it might be slight, but it emphasized the discontent expressed, and acted as a definite warning. He suggested a most severe scale; namely, for the first offence, forfeiture of one month's commons; for the second, of three months' commons; and for the third, expulsion; but there is no reason to think that this was ever the practice.

Confessions. A public confession was another form of punishment once used: I believe that

this ceased to be employed by the middle of the eighteenth century.

Statutory Admonitions. Rustication. Expulsion. For the graver offences, a statutory admonition, rustication (temporary removal from the college), or expulsion were reserved.

A formal admonition was intended to act as a serious warning, and it served as a statutory prelude to expulsion. For this reason it was usually recorded, and in former times an additional sting was added by compelling the culprit to make also a public or written confession of his fault. Admonitions are not very common in the records of Trinity: some thirty or forty occur in the sixteenth and seventeenth century, only a few in the eighteenth century, and they are rare in the nineteenth century save for a few relating to irregularity of attendances at chapel or lectures. The last admonition at Trinity was given in 1881, shortly before the new statutes of 1882 became operative. Here are typical instances of the record of admonitions.

Whereas heretofore I have received an admonition from the Master of the College for my lewd and outrageous behaviour within the same, and have since that time for like rioting and swaggering in the Town received another admonition from him before the Vice-Master of the College and my Tutor and also therewith all public correction, if these admonitions together with due punishment do not work reformation in me hereafter, I do likewise willingly

acknowledge that I am incorrigible and worthy for the next like offence to be expelled the College. Galen Browne. Circ. 1601. [Browne was elected to a scholarship in 1602, and graduated B.A. and M.A. in due course, so presumably he amended his ways.]

Whereas I have very unadvisedly and rashly stricken one Mr Halfhead, a College servant, to the shedding of blood, I do acknowledge myself to have received an admonition for that fault tending to expulsion. Thomas Shirley, 22 February, 1621. [Halfhead was the manciple. Shirley was a fellow and master of arts, so the offence was the more serious, but perhaps the provocation was great. Shirley was subsequently junior bursar and tutor.]

I, Christopher Offley, do confess that often times and many ways I have offended against the Statute *de Modestia Morum* to the displeasure of God, hurt to myself, the evil example of others, and discredit of the College, and also have broken mine oath taken when I was preferred scholar in unreverent behaviour towards some of the fellows and specially in giving scandalous and contumelious speeches to Mr Hitch, being the Minister and Fellow of this College for which misdemeanors and undutiful carriage I am unfainedly sorry and heartily desire forgiveness both of God, and him, or any other whom I have offended, and confess I have received a just admonition of the Master and Seniors by setting my date to this writing. Circ. 1622. [Offley graduated B.A., 1624, and M.A., 1627, so presumably he amended his ways.]

Whereas we whose names are underwritten, on the fourth of April last, were guilty of grave irregularity and misbehaviour by insulting the Vice-Master, the Dean, and other officers of the College and thereby gave just offence to the Society, we do profess ourselves heartily sorry for the same and acknowledge the lenity of the Master and Dean in

suffering us to return so soon from rustication. And we do hereby engage to be strictly observant of our duty for the future and take this as our first admonition in order to expulsion. James Bensley, John Ambler. 29 May, 1754. [Bensley graduated in due course and was elected to a fellowship: Ambler did not graduate.]

Ordered that..., for irregular attendance at lectures and neglect of impositions, be admonished a second time previous to rustication or expulsion. 29 May, 1844.

Temporary or permanent removal from the College were penalties reserved for the gravest offences. They are still recognized as possible punishments. The fact that there are but few records of the infliction of these extreme penalties indicates how easily discipline has always been maintained.

My readers may well think that the results of these notes are somewhat scanty, but if that nation is happy which has no history, surely universities and colleges are to be congratulated whose records of punishment are so few. To sum up the matter, the general effect left on my mind is that most of the common offences were due only to youthful exuberance of spirits and not to deliberate mischief making; and that the rules and sanctions, judged by the standard of their time, have been neither harsh nor unreasonable, and have usually been approved by public opinion in the University.

CHAPTER XIII.

NEWTON'S *PRINCIPIA*.

NEWTON'S *Principia* is one of the few scientific books which has sensibly affected the methods of scientific research and the ideas of men about the universe. It is on this aspect of the subject I propose, in this paper, to make a few remarks. The work itself is a classic in the history of mathematics: the exposition of the subject, the enunciation of the principle of prime and ultimate ratios, the creation of mechanics as a science resting on experiments, and the theory of universal gravitation with concrete applications to the solar system, make it a masterpiece. Here I avoid all technicalities, and confine myself to a general description of its genesis and contents and the reason why its publication affected scientific thought and methods.

Newton's exposition arose from an investigation of the cause of the motion of the planets round the sun, and this in due course led to the enunciation and establishment of the Newtonian theory of attraction. The origin of this theory has been often told, but will bear repetition. The fundamental idea occurred to Newton in 1665 or 1666, shortly after he had taken his degree at Cambridge, when, as he

wrote later, "I was in the prime of my age for in-"vention, and minded Mathematicks and Philosophy "more than at any time since." His reasoning was as follows. He knew that gravity extended to the highest hills, he saw no reason why it should cease to act at greater heights, accordingly he believed that it would be found in operation as far as the moon, and he suspected that it might be the force which retained that body in its path round the earth.

This hypothesis he verified thus. If a stone is allowed to fall near the surface of the earth, the attraction of the earth causes it to move through sixteen feet in one second: also Kepler's Laws, if accurate and applicable, involve the conclusion that the attraction of the earth on a distant body varies inversely as the square of its distance from the earth. Now the radius of the earth and the distance of the moon were known to Newton, and therefore, on this hypothesis, he could find the magnitude of the earth's attraction on the moon. Further, assuming that the moon moved in a circle, he could calculate the force required to retain it in its orbit. At this time his estimate of the radius of the earth was inaccurate, and, when he made the calculation, he found that this force was rather greater than the earth's attraction on the moon. The discrepancy did not shake his faith in his theory, but he conjectured that the moon's motion was also

affected by other influences, such for example, as the effect of a resisting medium which might itself be in motion as supposed by Descartes in his hypothetical vortices.

In 1679 Newton knew with approximate correctness the value of the radius of the earth. He repeated his calculations, and found the results to be in accordance with his former hypothesis. He then proceeded to the general theory of the motion of a particle under a force directed to a fixed point, and showed that the vector to the particle would sweep over equal areas in equal times. He also proved that, if a particle describes an ellipse under a force directed to a focus, the law must be that of the inverse square of the distance from the focus, and conversely, that the orbit of a particle projected in free space under the influence of such a force must be a conic. The application to the solar system was obvious, since Kepler had shown that the planets describe ellipses with the sun in one focus, and that the vectors from the sun to them sweep over equal areas in equal times. This investigation was made for his own satisfaction and was not published at the time. In it he treated the solar bodies as if they were particles, and he must have realized that the results could be taken as being only approximately correct.

In 1684 the subject of the planetary orbits was

discussed in London by Halley, Hooke, and Wren. They were aware that, if Kepler's conclusions were correct, the attraction of the sun or earth on a distant external particle must vary inversely as the square of the distance, but they could not determine the orbit of a particle subjected to the action of a central force of this kind. It was suggested that Newton might be able to assist them. Accordingly in August, Halley went to Cambridge for a talk on the subject, and then found that Newton had solved the problem some five years previously, and that the path was necessarily a conic. At Halley's request Newton wrote out the substance of his argument, and sent it to London.

Halley at once realized the importance of the communication, and later in the autumn returned to Cambridge to urge Newton to prosecute the theory further. He found that Newton had already done something in the matter, the results being contained in a manuscript which he saw. Probably this reference is to the holograph manuscript, still preserved in the University Library at Cambridge, of Newton's lectures in the Michaelmas Term, which served as the basis of his memoir sent to the Royal Society a few months later. The great value of these investigations was recognized, and Newton was persuaded to attack the more general problem. His results are given in the *Principia*.

As yet Newton had dealt with the problem as if the sun and the planets might be regarded as heavy masses concentrated at their centres. Clearly at the best this was only an approximation, though considering the enormous distances involved it was not unreasonable. In January or February, 1685, he considered the question of the attraction of bodies of finite size, and found, to his surprise and gratification, that a sphere or spherical shell attracts an external particle as if condensed into a heavy mass at its centre. Hence the results he had already proved for the relative motion of particles were true for the solar system, save for small errors due partly to the fact that the bodies were not perfectly spherical and partly to disturbances caused by the planets attracting one another. It was no longer a question of rough approximation: the problem was reducible to mathematical analysis, subject to the introduction of minute corrections, which, given the necessary observations, could be calculated very closely. This was a new discovery of first-rate importance, and initiated the modern theory of attractions.

The first book of the *Principia* was finished before the summer of 1685. It deals with the motion of particles or bodies in free space either in known orbits or under the action of known forces. In it the law of attraction is generalized into the

statement that every particle of matter attracts every other particle with a force which varies directly as the product of their masses and inversely as the square of the distance between them. Thus gravitation was brought into the domain of science.

The second book was completed by the summer of 1686. It treats of motion in a resisting medium and of various problems connected with waves. At the end of it, it is shown that the Cartesian theory of vortices is inconsistent with the laws of motion, and necessarily leads to incorrect results. This book opened another world to the application of mathematics and, in effect, created the science of hydrodynamics.

The third book was finished in March 1687. In this, the theorems previously established are applied to the chief phenomena of the universe, and briefly we may say that all the facts then known about the solar system and, in particular, the motion of the moon with its various inequalities, the figure of the earth, and the phenomena of the tides, were shown to be in accord with the theory. Much of the material for these calculations was collected by Flamsteed and Halley.

The *Principia*, as I have said, is a classic. Like other books to which that compliment is paid, it is rarely read: indeed, I doubt whether there are a

dozen men in Cambridge who have glanced all through it, even in a cursory manner. When I was an undergraduate the course for the Tripos involved five sections (1, 2, 3, 9, and 11) of the first book, but now, probably with good reason, even this slight acquaintance with the work is no longer required, and to-day the character of these investigations is unfamiliar to most mathematicians, while the fact that it is written in Latin tends to diminish the number of its readers. I will, then, with your permission, describe briefly its frame-work.

First, however, let me remark on how different was the knowledge of mathematics, even among experts, at the time it was written from that current to-day. In the geometry of the circle and conics mathematicians were familiar with the methods of Greek science, and in their application Newton was unrivalled among his contemporaries, but outside geometry methods of investigation were far to seek. Analysis had been but little developed; algebraic notation had only recently taken definite form; trigonometry was still used mainly as an adjunct to astronomy; analytical geometry had been invented by Descartes, but no text-books on it of modern type were available; while nothing about the calculus had been published. Mechanics, however, had recently been treated as a science—statics by Stevinus and dynamics by Galileo—and this paved the way for

Newton's investigations. In particular, Galileo had established principles which foreshadowed the first two laws of motion, and had deduced formulae in linear motion like $v^2 = 2fs$, $s = \frac{1}{2}ft^2$, and in circular motion like $f = v^2/r$.

Newton prefaced the *Principia* by explaining that the earliest problems in natural philosophy which attract attention are connected with the phenomena of motion, and it was with motion that the book dealt. To discuss motion effectively, it was necessary to give precision to the language used, and accordingly he propounded definitions of mass, momentum, inertia, and so on, which have settled the language of the subject. He next enunciated his three well-known laws of motion, and described the experiments on which he based them. He followed this up by deducing rules for the composition and resolution of forces, and discussed relative motion.

This preliminary matter is followed by the first book, concerned with the motion of bodies in an unresisting medium. It is divided into fourteen sections containing ninety-eight propositions with various interpolated lemmas, corollaries, and scholia.

The first section is on the method of prime and ultimate ratios, by the use of which Newton was able, in effect, to integrate. He applied this to the curvature and the areas of curves, and proved that,

at the very beginning of the motion of a body from rest under any force, the space described is proportional to the force and the square of the time.

The second section is concerned with the motion of a particle under a central force. It contains the well-known propositions that if the force is central the area swept out by the vector to the centre is proportional to the time, and conversely that if such area is proportional to the time the particle is acted on by a central force. Newton further discussed particular cases of circular, elliptic, and spiral motion. In the third section he dealt with motion in a conic under a central force to the focus, showed that in this case the force must vary inversely as the square of the distance, and conversely that if a particle be projected from any point in any direction with any velocity under such a force it must describe a conic about the centre of force as a focus, and that in such elliptic orbits the periodic times are in the sesquiplicate ratio of the major axes of the ellipses. He also explained how to treat the problem if disturbing forces are introduced. These two sections solved the problem of planetary motion if the planets could be treated as particles and did not disturb one another's motions.

The fourth and fifth sections are given up to the proof of certain geometrical propositions in conics required for subsequent discussions: in particular

the construction of a conic when a focus and three other conditions or when five points on it or five tangents to it are given.

In the sixth section Newton returned to the problem of the motion of a particle in an ellipse under a central force to a focus, and discussed how to determine the position of the particle at any given time. (Kepler's Problem.)

The seventh and eighth sections are devoted to the motion of a particle under a central force which is any function of the distance. The geometrical treatment of these problems is ingenious, but necessarily more involved than when modern analysis is used.

In the ninth section Newton dealt with the motion of particles in orbits which are revolving about the centre of force, and on the motion of the apses of such orbits: this introduced the theory of disturbing forces. The tenth section is concerned with constrained motion, and particularly with the motion of pendulums. The eleventh section deals with the motion of particles under their mutual attractions and incidentally with the problem of three bodies. These three sections afford a notable illustration of Newton's analytical powers.

The twelfth and thirteenth sections deal with the attraction under various laws of force of spherical bodies, circular laminae, and solids of revolution.

These sections brought the problem of the solar system, consisting of solid bodies of finite size and approximately spherical in form, into the domain of mathematics, and led up to the generalization that all particles of matter attract one another with a force proportional to the product of their masses and inversely proportional to the square of the distance between them, from which law it would seem that all the known phenomena of the motions of the solar system can be deduced.

The fourteenth section is concerned with the motion of minute corpuscles, with applications to the corpuscular theory of light.

The second book is devoted to the discussion of the motion of bodies in resisting mediums: there are fifty-three propositions besides lemmas, scholia, etc.

In the first section, Newton considered the motion of a particle or sphere moving in a medium whose resistance varies as the velocity of the particle: in the second section the resistance is assumed to vary as the square of the velocity: and in the third section the resistance is supposed to consist of two terms, one varying as the velocity and the other as the square of the velocity. The fourth section is on spiral motion caused by resistance of the medium.

The fifth section deals with the density and pressure of liquids and gases at rest (Hydrostatics).

The sixth section treats of the motion of pendulums in a resisting medium; and the seventh section is concerned with the motion of fluids, and the resistance they offer to the motion of projectiles. The latter section contains the celebrated statement of the form of the solid of least resistance, whose demonstration proved a puzzle to mathematicians until the invention of the calculus of variations. Newton's solution is in the Portsmouth papers, and elsewhere I have published it: it involves the use of fluxions, and it is probable that it was his failure to translate this demonstration into geometrical language that led him to give the result without a proof.

The eighth section deals with the motion of waves with applications to the theory of sound and the undulatory theory of light; and the ninth section deals with vortices; it is here shown that the theory of vortices suggested by Descartes to explain the motion of the solar system is untenable.

This book created the theory of hydrodynamics. Much of it is incomplete, but it is astonishing that Newton proved as much as he did; of course to-day no one would suggest that the best way of attacking these problems is by Newtonian geometrical methods.

The third book contains the practical application of the propositions in the two earlier books to the solar system. I need not describe this in detail. In order to justify this application, Newton com-

menced by laying down four rules which have since been accepted as binding in scientific investigations. These, as given in the third edition, are to the following effect: (1) We are not to assume more causes than are sufficient and necessary for the explanation of observed facts. (2) Hence, as far as possible, similar effects must be assigned to the same cause; for instance, the fall of stones in Europe and America. (3) Properties common to all bodies within reach of our experiments are to be assumed as pertaining to all bodies; for instance, extension. (4) Propositions in science obtained by a wide induction are to be regarded as exactly or approximately true, until phenomena or experiments show that they may be corrected or are liable to exceptions. The substance of these rules is now accepted as the basis of scientific investigation. Their formal enunciation here serves as a landmark in the history of thought.

As soon as the Copernican view of the solar system was accepted, it was natural for men to seek to explain the reason why the planets moved as they did. Descartes, in 1644, had suggested that the explanation might be found in the existence of vortices in space. This conjecture, although based on arbitrary assumptions, and in fact untenable, played an important part in the history of the subject, for it accustomed men to think that planetary phenomena might be explicable by the same laws

as are found to be true on the earth. That this was so was established by Newton in his *Principia*, where all the motions of the solar system were made to depend on one assumption as to the law of attraction. The question whether this law could itself be deduced from some more fundamental assumption was raised by Newton, but he could not devise a satisfactory hypothesis. It has been discussed again and again since his time, and the problem is still unsolved.

Newton's conclusions were immediately accepted in Britain, and very rapidly by the leading mathematicians in Europe: indeed Huygens came expressly from Holland in order to make the personal acquaintance of a writer whose work promised to revolutionize the history of science. The refutation of the Cartesian hypothesis ran, however, counter to the sentiments and wishes of a certain number of philosophers, and some few years elapsed before the truth of the gravitation theory was universally admitted, but it would be ungracious to dwell further on this. In Britain the work exercised a profound influence in philosophy as well as in science, and educated men of all schools of thought acquainted themselves with the general line of Newton's reasoning and his deductions.

That men of science and philosophers should have approved Newton's theory is not surprising, but it is somewhat curious that it excited so little

opposition among theologians. Galileo's discoveries of hills, vales, and (supposed) seas on the moon and planets had already suggested that life might exist there, and in the popular (but illogical) view this involved the idea of the existence of beings with spiritual and intellectual faculties not unlike those of men. Newton's results seemed to show that there was nothing in the nature of things to differentiate the earth from the other planets, and therefore considerably strengthened the view that life might be found on them. It might well be asked whether such life, and indeed whether the mechanism of the solar system as expounded by Newton, was in accordance with Scripture. That these difficulties were not pressed against Newton's conclusions is, I think, attributable to the fact that his theory was explicitly concerned only with non-organic matter. His own opinion was that the extension of the reign of law was an additional argument in favour of a divine creation: this view, set out at the end of the *Principia* and in his five letters to Bentley in 1692–93, was generally accepted by the leaders of religious thought in Britain.

Lagrange more than once remarked that Newton was not only the greatest mathematician of former days, but the most fortunate, since, as there is but one universe, it can happen to but one man in the

world's history to be the interpreter of its laws. It is true that Newton applied his theory only to the solar system for which alone he had the necessary data, but after the publication of the *Principia*, no one doubted that gravity extended to the most distant regions of space. The work of Sir William Herschel and that of all later astronomers on binary and other systems rests on this hypothesis.

The influence of the *Principia* on dynamical astronomy has been permanent. It is not too much to say that when it was published, the theory, as there set out, had outstripped observation, but during the succeeding century large numbers of new facts were collected, and applications of the theory to new problems were made, notably by Clairaut, Euler, and Lagrange. All these researches tended to confirm it.

The demonstrations in the *Principia* are expressed in the language of classical geometry, and, though unnecessarily concise and difficult, their correctness is unimpeachable. That Newton could carry his calculations so far with the limited mathematics then at his command is not the least wonderful part of the performance, but it is the prerogative of genius to get great results with but scanty equipment.

Newton's methods, which even in the seventeenth century were archaic, became in time quite out of

date. This reason, the growth of the subject, and the development of analysis made it desirable to expound dynamical astronomy afresh. Towards the end of the eighteenth century the task was undertaken by Laplace in his *Mécanique Céleste*. This is far more than the translation of the *Principia* into the language of modern analysis, for it greatly extends the theory of some branches of the subject which had been left incomplete by Newton, either on account of his not having the requisite analysis at his command or because the necessary facts were not available. Laplace acknowledged his debt to Newton, and expressed his deliberate opinion that the *Principia* was pre-eminent over every previous production of human genius—"so near the "gods, man cannot nearer go." A century later a fresh exposition of the subject embodying the discoveries of the nineteenth century was given by F. F. Tisserand in his *Mécanique Céleste*; this presents the subject in its modern form.

Newton had applied his theory to the solar system as it existed, and had not investigated its origin. We owe to Laplace the enunciation of a hypothesis as to its evolution. According to this conjecture, the solar system originated in a quantity of incandescent gas rotating round an axis through its centre of mass. Laplace assumed that as this gas cooled, it would contract, and that successive rings

would break off from its outer edge; these rings in their turn would cool, and finally condense into the planets with their satellites; while the sun represents the central core which would be left. Recent investigations show that this cannot be taken as correct without numerous modifications. Moreover every extension of our knowledge requires the introduction of alterations in the hypothesis, and this clearly suggests that the conjecture is untenable. It played, however, a useful part in its day, as suggesting a common origin for all members of the system. Perhaps I ought to add that a nebular origin had been previously outlined by Kant, who had also suggested meteoric aggregations and tidal friction as agents concerned, but these were little more than vague conjectures.

The *Principia* convinced its readers that the laws of mechanics, discovered by experiment on the earth, were operative throughout the solar system. It was reserved for the nineteenth century to extend the reign of law to other celestial phenomena. Newton and his successors had proved that the law of gravity extends through all parts of space where observations are possible. That the sun, stars, and planets are constituted of similar materials was generally believed; and this has now been confirmed by the use of the spectroscope which has enabled us to calculate the temperature of gaseous stars, and

specify the chemical elements comprised in them. Thus the composition of far-distant suns has been reduced to problems to be settled in our laboratories. The scientific world, however, in admitting the validity of the theory of universal gravity had implicitly accepted the principle that the reign of law, as investigated on the earth, extends throughout the universe. Thus the daring which permits us, living on a medium-sized planet attached to one of the smaller suns, to analyse the universe is, I venture to say, the direct outcome of the genius of Newton as displayed in his *Principia*.

CHAPTER XIV.

ISAAC NEWTON ON UNIVERSITY STUDIES.

AMONG the Portsmouth papers in the University Library at Cambridge* is a memorandum by Isaac Newton, drawn up, I conjecture, towards the close of the seventeenth century, on the organization of the studies and on the discipline of the University. Conditions then differed so widely from those now in force that the value of the memorandum is only historical, but notwithstanding this, its interest is considerable. I have no reason to suppose that it was formally brought before the regent or the non-regent house, and possibly the plan never got beyond discussion by a few friends. I have modernized the spelling, made the use of capitals uniform, allowed myself to break paragraphs, and sometimes inserted punctuation or altered it—otherwise the paper is as originally written. I give it without further comment.

Newton's Memorandum.

"Undergraduates to be instructed by a Tutor, a Humanity Lecturer, a Greek Lecturer, a Philosophy Lecturer, and a Mathematic Lecturer.

"The Tutor to read logic, ethics, the globes and

* Camb. Univ. Library, Newton MSS. section viii, No. 5, Add. 4005/6, A.

principles of geography and chronology in order to understand history, unless the Lecturers have time for any of these things.

"The Humanity and Greek Lecturers to set tasks in Latin and Greek authors once a day to the first year, and once a week to the rest; and to examine diligently and instruct briefly; and to punish by exercises such faults as concern lectures; and to appoint the reading of the best historians.

"The Philosophy Lecturer to read first of things introductory to natural philosophy—time, space, body, place, motion and its laws, force, mechanical powers, gravity and its laws, hydrostatics, projectiles solid and fluid, circular motions and the forces relating to them. And then to read natural philosophy, beginning with the general system of the world, and thence proceeding to the particular constitution of this earth and the things therein—meteors, elements, minerals, vegetables, animals, and ending with anatomy if he have skill therein. Also to examine in logic and ethics.

"The Mathematic Lecturer to read first some easy and useful practical things; then Euclid, spherics, the projections of the sphere, the construction of maps, trigonometry, astronomy, optics, music, algebra, etc. Also to examine and (if the Tutor be deficient) to instruct in the principles of chronology and geography.

"Several sciences which depend not on one another are all learnt in less time together than successively, the mind being diverted and recreated by the variety, and put more upon the stretch. And therefore divers of these Lecturers may proceed together: suppose the Tutor's [lectures] after morning chapel, the Greek or Philosophy Lecturer's two hours after, and the Humanity and Mathematic [Lecturers'] in the afternoon. The Tutor to accompany his pupils to the philosophy and mathematic lectures, and to examine them the next morning both in those lectures and in his own, and make them understand where they hesitate. These two Lecturers to read five days in the week and with the other two [Lecturers] to examine the sixth. Each Lecturer to read the same day successively to two or three years [*i.e.*, to Freshmen, Junior Sophs, or Senior Sophs as the case may be] under [their] several Tutors. Their lectures to begin with [the] Michaelmas Term and continue till the Commencement [*i.e.* the end of the Easter Term]: the Tutors to begin the Commencement before. The Greek and Humanity Lecturers to set bigger tasks in the vacations than in the reading-time, proportionally to the spare hours of the students.

"A Monitor to note those who miss lectures, and give their names to the Humanity Lecturer, who shall punish them, not by pecuniary mulcts, but by

tasks [, such as] by making verses, themes, epistles, or getting anything without book. All pecuniary mulcts of Undergraduates to be abolished; and exercises, admonitions, recantations, and expulsions (according to the nature of the crime) to succeed in their room.

"In the Long Vacation, between the Commencement and Michaelmas, the Tutor shall take care that his Pupils read over all the last year's lessons again by themselves, and at the end of the vacation they shall be examined again, and those, who are at any time found not fit to go on, turned down to the lectures of the year below, that they do not retard the Lecturer and be an ill example to others.

"The Lecturers to be chosen every three years, and the elections after the first institution to be on this manner. All those who have at any time been Lecturers shall choose four out of their number, one for each office, and the Master and Seniors of the College shall choose other four who have not yet executed the office, and those eight with the Master shall, by balancing, choose four out their number. [There shall be] no regard to seniority or anything but merit. The Lecturers to choose yearly a Public Tutor, and to reprehend or displace him if there be reason. This Tutor without a new election to take none but those admitted in his year of office until their course of lectures be gone through. No Private Tutor to take two years together. All

sizars, poor scholars, and scholars of the House to be under Public Tutors, except Westminster scholars of Trinity College when the Tutor is of another school.

"For encouraging able and fit men to accept of the Readers' places, their fellowships during their office shall be doubled by the addition of four other fellowships kept vacant for the purpose, one for each, unless some other competent provision be made for any of them. And because the Philosophy and Mathematic Lecturers' office is laborious, for encouraging them to diligence none shall be compelled to come to their lectures, but all that will be auditors shall offer each of them a quarterly gratuity; suppose of 10s. the sizar, 12s. or 15s. the pensioner, and 20s. or 25s. the fellow-commoner. And to encourage auditors those shall be preferred to scholarships and fellowships which are best skilled in all sciences, *caeteris paribus*, and shall have seniority of those that come not to lectures. This institution to begin in the greater colleges, and be carried on in the rest as men qualified and revenues can be had. In smaller colleges the Mathematic Lecturer may be omitted, and only a power granted the College of instituting one when they can. Also the Greek Lecturer's office may be supplied by the Humanity Lecturer when it shall be thought fit. A gratuity to be given by all the first year to the Greek and Humanity Lecturers.

"For securing the Tutor and making his office desirable by fit persons, every student at his admission to deposit caution money in the hands of the bursar of the College; suppose £10 or £12 the sizar, £16 or £20 the pensioner, and £30 or £40 the fellow-commoner. And in case any pupil at the end of any quarter be in his Tutor's debt, and do not discharge it within six weeks after his receipt of the quarter bill, the Bursar to discharge it, and return back the residue upon demand, and the Tutor forthwith upon pain of forfeiting his office, to send home the pupil. Yet may the pupil be received again with a new supply of money. This institution to be universal. The Master and Seniors to regulate the expenses of all under tuition by certain limits common to them all, and the Senior Dean to read over and sign all their quarter bills. Extravagant pupils, after one admonition, to be sent away.

"Fellow-commoners to perform all exercises in their courses, and to be equally subject to their Tutors and Governors with other scholars and alike punishable by exercises, and those who are resty or idle to be sent away lest they spoil others by their bad example. They shall read geography, chronology, and mathematics the first year.

"All students who will be admitted to lectures in natural philosophy to learn first geometry and mechanics. By mechanics I mean here the demon-

strative doctrine of forces and motions, including hydrostatics. For without a judgment in these things a man can have none in philosophy.

"Whenever the major part of the Mathematic Lecturers in the University shall desire [it] a Master [shall be appointed] to teach fellow-commoners and others arithmetic and designing. The University shall allow him £10 yearly out of their Common Chest, and he shall observe the orders of the Mathematic Lecturers and be placed or displaced by the major part of them at pleasure.

"All graduates without exception found by the Proctors in taverns or other drinking houses, unless with travellers at their inns, shall at least have their names given in to the Vice-Chancellor, who shall summon them to answer it before the next Consistory.

"The Deans to visit the chambers of all undergraduates once at least every week, upon pain of forfeiting 10*s.* to the Lecturers for every omission.

"Fasting nights have a shadow of religion without any substance. 'Tis only supping more pleasantly out of the public hall. And this does great mischief by sending young students to find suppers abroad, where they get into company and grow debauched. Whether would it not be better to license undergraduates to sup together in such places as the Dean shall appoint, with a Monitor to note the names of the absent?

"All these lectures to consist in extemporary explications of books in such an easy, short, and clear manner as may be most profitable to the auditors. And if any Lecturer or other person shall compose any treatise which shall be preferred and used by the major part of the Mathematic or Philosophic Lecturers, the University shall give the author either £20, or if those Lecturers request it, £30, £40 or £50, out of their Common Chest.

"Commissioners to be appointed for some years to set on foot, inspect, and amend the institution.

"No oaths of office to be imposed on the Lecturers. I do not know a greater abuse of religion than that sort of oaths: they being harder to be kept than the Jewish Law, so that yearly absolutions have been instituted. The papists, who believe such absolutions, might be excused for instituting such oaths, but we have no such doctrine, and yet continue their practices. Admonitions and pecuniary mulcts for neglect of duty are less cruel punishments than the consequence of perjury, and may be as effectual."

CHAPTER XV.

THE HISTORY OF THE MATHEMATICAL TRIPOS.

THE Mathematical Tripos has played so prominent a part in the history of education at Cambridge and of mathematics in England, that a sketch of its development* may be interesting to general readers.

So far as mathematics is concerned the history of the University before Newton may be summed up very briefly. The University was founded towards the end of the twelfth century. Throughout the middle ages, the instruction given to students was organized on lines similar to those current at Paris and Oxford, and to qualify for a degree it was necessary to perform various exercises, and especially to keep a number of *acts* or to oppose acts kept by other students. An act consisted in effect of a

* The greater part of this chapter formerly appeared in my *Mathematical Recreations and Essays*, but a few paragraphs on "coaching" have been taken from a paper which I wrote for distribution to those who attended the International Congress of Mathematicians held in England in 1912. The subject is treated in Whewell's *Liberal Education*, Cambridge, three parts, 1845, 1850, 1853; Wordsworth's *Scholae Academicae*, Cambridge, 1877; my own *Origin and History of the Mathematical Tripos*, Cambridge, 1880; Glaisher's Presidential Address to the London Mathematical Society, *Transactions*, vol. XVIII, 1886, pp. 4–38; and my *History of the Study of Mathematics at Cambridge*, Cambridge, 1889.

debate in Latin, thrown, at any rate in later times, into syllogistic form. It was commenced by one student, the *respondent*, stating some proposition, often propounded in the form of a thesis, which was attacked by an *opponent* or *opponents*, the discussion being controlled by a senior graduate. The teaching was largely in the hands of young graduates —every master of arts being compelled to reside and teach for at least one year—though no doubt colleges and private hostels supplemented this instruction in the case of their own students.

The reformation in England was largely the work of Cambridge divines, and in the University the renaissance was warmly welcomed. In spite of the disorder and confusion of the Tudor period, new studies and a system of professional instruction were introduced. The earliest lectureships created by the University seem to have been one in Latin established in or before 1492 and one in mathematics established in or before 1501: they mark the beginning of the system of teaching by experts which has superseded the medieval system of compulsory teaching by all regent masters. The fact that one of these lectureships was in mathematics shows that as early as 1500 the subject was regarded as important. Tunstall, subsequently the most eminent English arithmetician of his time, migrated in 1496 from Oxford to Cambridge, and

most of the subsequent English mathematicians of the Tudor period were at Cambridge; of these I may mention Record (who migrated, probably about 1535, from Oxford), Dee, Digges, Blundeville, Buckley, Billingsley, Hill, Bedwell, Hood, Richard and John Harvey, Edward Wright, Briggs, and Oughtred. Under the Elizabethan statutes of 1570, notwithstanding many disadvantages, the mathematical school continued to grow. Horrox, Seth Ward, Foster, Rooke, Gilbert Clerke, Pell, Wallis, Barrow, Dacres, and Morland may be cited as prominent Cambridge mathematicians of the succeeding century.

Newton's mathematical career dates from 1665; his reputation, abilities, and influence attracted general attention to the subject. He created a school of mathematics and mathematical physics, among the earliest members of which I note the names of Laughton, Samuel Clarke, Craig, Flamsteed, Whiston, Saunderson, Jurin, Taylor, Cotes, and Robert Smith. Since then Cambridge has been regarded as, in a special sense, the home of English mathematicians, and from 1706 onwards we have fairly complete accounts of the course of reading and work of mathematical students.

Until less than a century ago the form of the method of qualifying for a degree remained substantially unaltered, but the subject-matter of the

discussions varied from time to time with the prevalent studies of the place.

After the renaissance some of the statutable exercises were "huddled," that is, were reduced to a mere form. To huddle an act, the proctor generally asked some question such as *Quid est nomen?* to which the answer usually expected was *Nescio.* In these exercises considerable license was allowed, particularly if there were any play on the words involved. For example, J. Brass, of Trinity, was accosted with the question, *Quid est aes?* to which he answered, *Nescio nisi finis examinationis.* It should be added that retorts such as these were only allowed in the pretence exercises, and a candidate who in the actual examination was asked to give a definition of happiness and replied, "An exemption from Payne"—that being the name of his questioner—was plucked for want of discrimination in time and place. In earlier years even the farce of huddling seems to have been unnecessary, for it was said in 1675 that it was not uncommon for the proctors to take "cautions for "the performance of the statutable exercises, and "accept the forfeit of the money so deposited in lieu "of their performance."

In medieval times acts had been usually kept on some scholastic question or on a proposition taken from the *Sentences.* About the end of the fifteenth

century religious questions, such as the interpretation of biblical texts, began to be introduced. Some fifty or sixty years later the favourite subjects were drawn either from dogmatic theology or from philosophy. In the seventeenth century the questions were usually philosophical, but in the eighteenth century, under the influence of the Newtonian school, a large proportion of them were mathematical.

Further details about these exercises and specimens of acts kept in the eighteenth century are given in my *History of Mathematics at Cambridge*. Here I will only say that they provided an admirable training in the art of presenting an argument, and in dialectical skill in attack and defence. The mental strain involved in keeping a contested act was severe. De Morgan, describing his act kept in 1826, wrote*:

> I was badgered for two hours with arguments given and answered in Latin—or what we call Latin—against Newton's first section, Lagrange's derived functions, and Locke on innate principles. And though I took off everything, and was pronounced by the moderator to have disputed *magno honore*, I never had such a strain of thought in my life. For the inferior opponents were made as sharp as their betters by their tutors, who kept lists of queer objections drawn from all quarters.

Had the language of the discussions been changed to English, as was repeatedly urged from 1774

* *Budget of Paradoxes*, by A. De Morgan, London, 1872, p. 305.

onwards, these exercises might have been retained with advantage, but the barbarous Latin and the syllogistic form in which they were carried on prejudiced their retention.

About 1830 a custom arose for the respondent and opponents to meet previously and arrange their arguments together. The discussions then became an elaborate farce, and were a mere public performance of what had been already rehearsed. Accordingly the moderators of 1839 took the responsibility of abandoning them. This action was singularly high-handed, since a report of 30 May 1838, had recommended that they should be continued, and there was no reason why they should not have been reformed and retained as a useful feature in the scheme of study.

On the result of the acts, a list of those qualified to receive degrees was drawn up. This list was not arranged strictly in order of merit, because the proctors could insert names anywhere in it, but by the beginning of the eighteenth century this power had become restricted to the right reserved to the vice-chancellor, the senior regent, and each proctor to place in the list one candidate anywhere he liked —a right which continued to exist till 1828, though it was not exercised after 1792. Except for the names of these "honorary optimes," this final list was, until 1752, arranged in order of merit into

wranglers and senior optimes, junior optimes, and poll-men; after 1752, the wranglers and senior optimes were placed in separate classes. The bachelors on admission to their degrees took seniority according to their order on this list. The title *wrangler* is derived from these contentious discussions; the title *optime* from the customary compliment given by the moderator to a successful disputant, *Domine..., optime disputasti*, or even *optime quidem disputasti*, and the title of *poll-man* from the description of this class as οἱ πολλοί.

The final exercises for the bachelor of arts degree were never huddled, and until 1839 were carried out strictly. University officials were responsible for approving the subject-matter of these acts. Stupid men offered some irrefutable truism, but the ambitious student courted reputation by affirming some paradox. Probably all honour men kept acts, but poll-men were deemed to comply with the regulations by keeping opponencies. The proctors were responsible for presiding at these acts, or seeing that competent graduates did so. In and after 1649 two examiners were specially appointed for this purpose. In 1680* these examiners were appointed by the senate with the title of moderator, and with the joint stipend of four shillings for everyone graduating as a bachelor of arts during their year of office.

* See grace of 25 October 1680.

In 1688 the joint stipend of the moderators was fixed at £40 a year. The moderators, like the proctors, were nominated by the colleges in rotation.

From the earliest times the proctors had the power of questioning a candidate at the end of a disputation, and probably all candidates for a degree attended the public schools on certain days to give an opportunity to the proctors (or any master who liked to take part in the examination) to examine them*, though the opportunity was not always used. Such examinations were conducted in Latin, and originally different candidates attended on different days. Soon after 1710† the moderators or proctors began the custom of summoning on one day in January all candidates whom they proposed to question, and conducting the examination in English and in public: the examination did not last more than one day, and was partly on philosophy and partly on mathematics. It was from this examination that the Mathematical Tripos developed.

This introduction of a regular oral examination seems to have been mainly due to the fact that when, in 1710, George I gave the Ely library to the

* *Ex. gr.* see De la Pryme's account of his graduation in 1694, *Surtees Society*, vol. LIV, 1870, p. 32.

† W. Reneu, in his letters of 1708–10 describing the course for the B.A. degree, makes no mention of the senate-house examination, and I think it is a reasonable inference that it had not then been established.

University, it was decided to assign for its reception the old senate-house—now the catalogue room in the library—and to build a new room for the meetings of the senate. Pending the building of the new senate-house the books were stored in the Schools, which thus were rendered unavailable for keeping acts. In consequence of this, considerable difficulty was found in arranging for all the candidates to keep the full number of statutable exercises, and obtaining opportunities to compare them one with another: hence the introduction or extension of a supplementary oral examination. The advantages of this examination as providing a ready means of testing the knowledge and abilities of the candidates were so patent that it was retained when the necessity for some system of the kind had passed away, and finally it became systematized into an organized test to which all questionists were subjected.

In 1731 the University raised the joint stipend of the moderators to £60 "in consideration of their "additional trouble in the Lent Term." This would seem to indicate that the senate-house examination had then taken formal shape, and perhaps that a definite scheme for its conduct had become customary.

As long as the order of the list of those approved for degrees was settled on the result of impressions derived from acts kept by the different candidates

at different times and on different subjects, it was impossible to arrange the men in strict order of merit, nor was much importance attached to the order. But, with the introduction of an examination of all the candidates on one day, much closer attention was paid to securing an accurate classification, and more confidence felt in the published order. It seems to have been consequent on this that in and after 1748 the final lists were regarded as authoritative and important and that the names of the honorary optimes were definitely indicated: the lists from this time appeared in the *University Calendars*. The lists from 1748 to 1910, with the earlier Ordines Senioritatis from 1499 to 1747, are printed in the *Historical Register of the University*.

Of the detailed history of the examination until the middle of the eighteenth century we know nothing. From 1750 onwards, however, we have more definite accounts of it. At this time, it would seem that all the men from each college were taken together as a class, and questions passed down by the proctors or moderators till they were answered: but the examination remained entirely oral, and technically was regarded as subsidiary to the discussions which had been previously held in the schools.

Each class contained men of very different abilities, and to meet difficulties thus caused, a custom grew up by which every candidate was

liable to be taken aside to be questioned by any master of arts who wished to do so, and this was regarded as an important part of the examination. The examination now continued for two days and a half, the subjects, as before, being mathematics and philosophy. At the conclusion of the second day the moderators received the reports of those masters of arts who had voluntarily taken part in the examination, and provisionally settled the final list. The last half-day was used in revising and re-arranging the order of merit.

Richard Cumberland has left an account of the tests to which he was subjected when he took his bachelor degree in 1751. Clearly the disputations still played an important part, and it is difficult to say what weight was attached to the subsequent senate-house examination; his reference to it is only of a general character. After saying that he kept two acts and two opponencies he continued*:

> The last time I was called upon to keep an act in the schools I sent in three questions to the Moderator, which he withstood as being all mathematical, and required me to conform to the usage of proposing one metaphysical question in the place of that, which I should think fit to withdraw. This was ground I never liked to take, and I appealed against his requisition: the act was accordingly put by till the matter of right should be ascertained by the statutes of the university, and in the result of that enquiry

* *Memoirs of Richard Cumberland*, London, 1806, pp. 78–79.

it was given for me, and my question stood.... I yielded now to advice, and paid attention to my health, till we were cited to the senate house to be examined for our Bachelor's degree. It was hardly ever my lot during that examination to enjoy any respite. I seemed an object singled out as every man's mark, and was kept perpetually at the table under the process of question and answer.

It was found possible by means of the new examination to differentiate the better men more accurately than before; and accordingly, in 1753, as above stated, the first class was subdivided into two, called respectively wranglers and senior optimes, a division which is still maintained.

The semi-official examination by masters of arts was regarded as the more important part of the test, and the most eminent residents in the University took part in it. Thus John Fenn, of Caius, 5th wrangler in 1761, wrote*:

On the following Monday, Tuesday, and Wednesday, we sat in the Senate-house for public examination; during this time I was officially examined by the Proctors and Moderators, and had the honor of being taken out for examination by Mr Abbot, the celebrated mathematical tutor of St John's College, by the eminent professor of mathematics Mr Waring, of Magdalene, and by Mr Jebb of Peterhouse, a man thoroughly versed in the academical studies.

This irregular examination by any master who chose to take part in it constantly gave rise to accusations of partiality.

* Quoted by C. Wordsworth, *Scholae Academicae*, Cambridge, 1877, pp. 30–31.

In 1763 the traditional rules for the conduct of the examination took more definite shape. Henceforth the examiners used the disputations only as a means of classifying the men roughly. On the result of their "acts," and probably partly also of their general reputation, the candidates were divided into eight classes, each arranged in alphabetical order. The subsequent position of the men in the class was determined solely by the senate-house examination. The first two classes comprised all who were expected to be wranglers, the next four classes included the other candidates for honours, and the last two classes consisted of poll-men only. Practically anyone placed in either of the first two classes was allowed, if he wished, to take an aegrotat senior optime, and thus escape all further examination: this was called gulphing it.

All the men from one college were no longer taken together, but each class was examined separately and *vivâ voce*; and hence, since all the students comprised in each class were of about equal attainments, it was possible to make the examination more effective. Richard Watson, of Trinity, claimed that this change was made by him when acting as moderator in 1763. He said*:

> There was more room for partiality... then [*i.e.* in 1759]

* *Anecdotes of the Life of Richard Watson*, London, 1817, pp. 18–19.

than there is now; and I attribute the change, in a great degree, to an alteration which I introduced the first year I was moderator [*i.e.* in 1763], and which has been persevered in ever since. At the time of taking their Bachelor of Arts' degree, the young men are examined in classes, and the classes are now formed according to the abilities shown by individuals in the schools. By this arrangement, persons of nearly equal merits are examined in the presence of each other, and flagrant acts of partiality cannot take place. Before I made this alteration, they were examined in classes, but the classes consisted of members of the same College, and the best and worst were often examined together.

It is probable that before the examination in the senate-house began a candidate, if manifestly placed in too low a class, was allowed the privilege of challenging the class to which he was assigned. Perhaps this began as a matter of favour, and was only granted in exceptional cases, but a few years later it became a right which every candidate could exercise; and I think that it is partly to its development that the ultimate predominance of the tripos over the other exercises for the degree is due.

In the same year, 1763, it was decided that the relative position of the senior and second wranglers, namely, Paley, of Christ's, and Frere, of Caius, was to be decided by the senate-house examination and not by the disputations. Henceforward distinction in that examination was regarded as the most important honour open to undergraduates.

In 1768 Robert Smith, of Trinity College, founded

prizes for mathematics and natural philosophy open to two commencing bachelors. The examination followed immediately after the senate-house examination, and the distinction, being much coveted, tended to emphasize the mathematical side of the normal university education of the best men. Since 1883 the prizes have been awarded on the result of dissertations*. Additional prizes, awarded at the same time, and associated with the name of Lord Rayleigh†, were founded in 1909.

Until about 1770, the senate-house examination had been oral, but it began now to be the custom to dictate some or all of the questions and to require answers to be written. Only one question was dictated at a time, and a fresh one was not given out until some student had solved that previously read: a custom which by causing perpetual interruptions to take down new questions must have proved very harassing. We are perhaps apt to think that an examination conducted by written papers is so natural that the custom is of long continuance, but I know no record of any in Europe earlier than the eighteenth century. Until 1830 the questions for the Smith's prizes were dictated.

* See grace of 25 October 1883; and the *Cambridge University Reporter*, 23 October 1883.

† See grace of 11 February 1909, and the *Cambridge University Reporter*, 8 December 1908.

The following description of the senate-house examination as it existed in 1772 was given by Jebb*:

The moderators, some days before the arrival of the time prescribed by the vice-chancellor, meet for the purpose of forming the students into divisions of six, eight, or ten, according to their performance in the schools, with a view to the ensuing examination.

Upon the first of the appointed days, at eight o'clock in the morning, the students enter the senate-house, preceded by a master of arts from each college, who...is called the "father" of the college....

After the proctors have called over the names, each of the moderators sends for a division of the students: they sit with him round a table, with pens, ink, and paper, before them: he enters upon his task of examination, and does not dismiss the set till the hour is expired. This examination has now for some years been held in the English language.

The examination is varied according to the abilities of the students. The moderator generally begins with proposing some questions from the six books of Euclid, plain (*sic*) trigonometry, and the first rules of algebra. If any person fails in an answer, the question goes to the next. From the elements of mathematics, a transition is made to the four branches of philosophy, viz. mechanics, hydrostatics, apparent astronomy, and optics, as explained in the works of Maclaurin, Cotes, Helsham, Hamilton, Rutherforth, Keill, Long, Ferguson, and Smith. If the moderator finds the set of questionists, under examination, capable of answering him, he proceeds to the eleventh and twelfth books of Euclid, conic sections, spherical trigonometry, the higher parts of Algebra, and sir Isaac Newton's Principia; more particularly those sections, which treat of the motion of

* *The Works of J. Jebb*, London, 1787, vol. II, pp. 290–297.

bodies in eccentric and revolving orbits; the mutual action of spheres, composed of particles attracting each other according to various laws; the theory of pulses, propagated through elastic mediums; and the stupendous fabric of the world. Having closed the philosophical examination, he sometimes asks a few questions in Locke's Essay on the human understanding, Butler's Analogy, or Clarke's Attributes. But as the highest academical distinctions are invariably given to the best proficients in mathematics and natural philosophy, a very superficial knowledge in morality and metaphysics will suffice.

When the division under examination is one of the highest classes, problems are also proposed, with which the student retires to a distant part of the senate-house, and returns, with his solution upon paper, to the moderator, who, at his leisure, compares it with the solutions of other students, to whom the same problems have been proposed.

The extraction of roots, the arithmetic of surds, the invention of divisers, the resolution of quadratic, cubic, and biquadratic equations; together with the doctrine of fluxions, and its application to the solution of questions "de maximis "et minimis," to the finding of areas, to the rectification of curves, the investigation of the centers of gravity and oscillation, and to the circumstances of bodies, agitated, according to various laws, by centripetal forces, as unfolded, and exemplified, in the fluxional treatises of Lyons, Saunderson, Simpson, Emerson, Maclaurin, and Newton, generally form the subject matter of these problems.

When the clock strikes nine, the questionists are dismissed to breakfast: they return at half-past nine, and stay till eleven; they go in again at half-past one, and stay till three; and, lastly, they return at half-past three, and stay till five.

The hours of attendance are the same upon the subsequent day.

On the third day they are finally dismissed at eleven.

During the hours of attendance, every division is twice examined in form, once by each of the moderators, who are engaged for the whole time in this employment.

As the questionists are examined in divisions of only six or eight at a time, but a small portion of the whole number is engaged, at any particular hour, with the moderators; and, therefore, if there were no further examination, much time would remain unemployed.

But the moderator's inquiry into the merits of the candidates forms the least material part of the examination.

The "fathers" of the respective colleges, zealous for the credit of the societies, of which they are the guardians, are incessantly employed in examining those students, who appear most likely to contest the palm of glory with their sons.

This part of the process is as follows:

The father of a college takes a student of a different college aside, and, sometimes for an hour and an half together, strictly examines him in every part of mathematics and philosophy, which he professes to have read.

After he hath, from this examination, formed an accurate idea of the student's abilities and acquired knowledge, he makes a report of his absolute or comparative merit to the moderators, and to every other father who shall ask him the question.

Besides the fathers, all masters of arts, and doctors, of whatever faculty they be, have the liberty of examining whom they please; and they also report the event of each trial, to every person who shall make the inquiry.

The moderators and fathers meet at breakfast, and at dinner. From the variety of reports, taken in connection

with their own examination, the former are enabled, about the close of the second day, so far to settle the comparative merits of the candidates, as to agree upon the names of four-and-twenty, who to them appear most deserving of being distinguished by marks of academical approbation.

These four-and-twenty [wranglers and senior optimes] are recommended to the proctors for their private examination; and, if approved by them, and no reason appears against such placing of them from any subsequent inquiry, their names are set down in two divisions, according to that order, in which they deserve to stand; are afterwards printed; and read over upon a solemn day, in the presence of the vice-chancellor, and of the assembled university.

The names of the twelve [junior optimes], who, in the course of the examination, appear next in desert, are also printed, and are read over, in the presence of the vice-chancellor, and of the assembled university, upon a day subsequent to the former....

The students, who appear to have merited neither praise nor censure [the poll-men], pass unnoticed: while those, who have taken no pains to prepare themselves for the examination, and have appeared with discredit in the schools, are distinguished by particular tokens of disgrace.

Jebb's statement about the number of wranglers and senior optimes is only approximate.

It may be added that it was now frankly recognized that the examination was competitive*. Also that though it was open to any member of the senate to take part in it, yet the determination of the relative merit of the students was entirely in the

* "Emulation, which is the principle upon which the plan is constructed." *The Works of J. Jebb*, London, 1787, vol. III, p. 261.

hands of the moderators*. Although the examination did not occupy more than three days it must have been a severe physical trial to anyone who was delicate. It was held in winter and in the senate-house: that building was then noted for its draughts, and was not warmed in any way; and, according to tradition, on one occasion the candidates on entering in the morning found the ink frozen in the pots on their desks.

The University was not altogether satisfied† with the regulations, and in 1779‡ the scheme of examination was amended in various respects. In particular the examination was extended to four days, a third day being given up entirely to natural religion, moral philosophy, and Locke's *Essay*. It was further announced§ that a candidate would not receive credit for advanced subjects unless he had satisfied the examiners in Euclid's *Elements* and elementary natural philosophy.

A system of brackets or "classes quam minimae" was now introduced. Under this system the examiners issued on the morning of the fourth day a provisional list of men who had obtained honours, with the names of those of about equal merit bracketed, and that day was devoted to arranging

* *The Works of J. Jebb*, London, 1787, vol. III, p. 272.
† See graces of 5 July 1773, and of 17 February 1774.
‡ See graces of 19, 20 March 1779.
§ Notice issued by the vice-chancellor, dated 19 May 1779.

the names in each bracket in order of merit: the examiners being given explicit authority to invite the assistance of others in this work. Whether at this time a candidate could request to be re-examined with the view of being moved from one bracket to another is uncertain, but later this also was allowed.

The number of examiners was also increased to four, the moderators of one year becoming, as a matter of course, the examiners of the next. Thus of the four examiners in each year, two had taken part in the examination of the previous year, and the continuity of the system of examination was maintained. The names of the moderators appear on the tripos lists, but the names of the examiners were not printed on the lists till some years later.

The right of any master of arts to take part in the examination was not affected, though henceforth it was exercised more sparingly, and I believe was not insisted on after 1785. But it became a regular custom for the moderators to invite particular residents to examine and compare specified candidates: Milner, of Queens', was constantly asked to assist in this way.

It was not long before it became an established custom that a candidate, who was dissatisfied with the class in which he had been placed as the result

of his disputations, might challenge it before the examination began.* This power seems to have been used but rarely; it was, however, a recognition of the fact that a place in the tripos list was to be determined by the senate-house examination alone, and the examiners soon acquired the habit of settling the preliminary classes without exclusive reference to the previous disputations.

The earliest extant paper actually set in the senate-house, to which we can with certainty refer, is a problem paper set in 1785 or 1786 by W. Hodson, of Trinity, then a proctor. The autograph copy from which he gave out the questions was luckily preserved, and is in the library* of Trinity College. It must be almost the last problem paper which was dictated, instead of being printed and given as a whole to the candidates. The paper is as follows:

1. To determine the velocity with which a Body must be thrown, in a direction parallel to the Horizon, so as to become a secondary planet to the Earth; as also to describe a parabola, and never return.

2. To demonstrate, supposing the force to vary as $\frac{1}{D^2}$, how far a body must fall both within and without the Circle to acquire the Velocity with which a body revolves in a Circle.

* The *Challis Manuscripts*, III, 61. There are two copies almost identical, one dated 1785, the other 1786. Probably the paper printed in the text was set in 1786.

3. Suppose a body to be turned (*sic*) upwards with the Velocity with which it revolves in an Ellipse, how high will it ascend? The same is asked supposing it to move in a parabola.

4. Suppose a force varying first as $\frac{1}{D^3}$, secondly in a greater ratio than $\frac{1}{D^2}$ but less than $\frac{1}{D^3}$, and thirdly in a less ratio than $\frac{1}{D^2}$, in each of these Cases to determine whether at all, and where the body parting from the higher Apsid will come to the lower.

5. To determine in what situation of the moon's Apsid they go most forwards, and in what situation of her Nodes the Nodes go most backwards, and why?

6. In the cubic equation $x^3 + qx + r = 0$ which wants the second term; supposing $x = a + b$ and $3ab = -q$, to determine the value of x. (*sic.*)

7. To find the fluxion of $x^r \times (y^n + z^m)^{\frac{1}{q}}$.

8. To find the fluent of $\frac{a\dot{x}}{a+x}$.

9. To find the fluxion of the m^{th} power of the Logarithm of x.

10. Of right-angled Triangles containing a given Area to find that whereof the sum of the two legs $AB + BC$ shall be the least possible. [This and the two following questions are illustrated by diagrams. The angle at B is the right angle.]

11. To find the Surface of the Cone ABC. [The cone is a right one on a circular base.]

12. To rectify the arc DB of the semicircle DBV.

In cases of equality in the senate-house examination, the acts were still taken into account in settling

the tripos order: and in 1786, when the second, third, and fourth wranglers came out equal in the examination, a memorandum was published that the second place was given to that candidate who *dialectis magis est versatus*, and the third place to that one who *in scholis sophistarum melius disputavit.*

At this time there were various intervals in the examination by the moderators, and the examinations by the extraneous examiners took place in these intervals. Those candidates who at any time were not being examined occupied themselves with amusements, provided they were not too boisterous and obvious: probably dice and cards played a large part in them. Gunning in an amusing account of his examination in 1788 talks of playing with a teetotum* on the Wednesday (when specified works by Locke and Paley formed the subjects of examination), and says this game "was carried on "with great spirit...by considerable numbers during "the whole of the examination."

About this period, 1790, the custom of printing the problem papers was introduced, but until 1828 the other papers continued to be dictated. Since then all the papers have been printed.

I insert here the following letter† from William

* H. Gunning, *Reminiscences*, second edition, London, 1855, vol. 1, p. 82.

† C. Wordsworth, *Scholae Academicae*, Cambridge, 1877, pp. 322–323.

Gooch, of Caius, in which he described his examination in the senate-house in 1791. It must be remembered that it is the letter of an undergraduate addressed to his father and mother, and was not intended either for preservation or publication: a fact which certainly does not detract from its value.

Monday ¼ aft. 12.

We have been examin'd this Morning in pure Mathematics & I've hitherto kept just about even with Peacock which is much more than I expected. We are going at 1 o'clock to be examin'd till 3 in Philosophy.

From 1 till 7 I did more than Peacock; But who did most at Moderator's Rooms this Evening from 7 till 9, I don't know yet;—but I did above three times as much as the Sen^{r} Wrangler last year, yet I'm afraid not so much as Peacock.

Between One & three o'Clock I wrote up 9 sheets of Scribbling Paper so you may suppose I was pretty fully employ'd.

Tuesday Night.

I've been shamefully us'd by Lax to-day;—Tho' his anxiety for Peacock must (of course) be very great, I never suspected that his Partially (*sic*) w^{d} get the better of his Justice. I had entertain'd too high an opinion of him to suppose it.—he gave Peacock a long private Examination & then came to me (I hop'd) on the same subject, but 'twas only to *Bully* me as much as he could,—whatever I said (tho' right) he tried to convert into Nonsense by seeming to misunderstand me. However I don't entirely dispair of being first, tho' you see Lax seems determin'd that I shall not.—I had no Idea (before I went into the Senate-House) of being able to contend at all with Peacock.

Wednesday evening.

Peacock & I are still in perfect Equilibrio & the Examiners themselves can give no guess yet who is likely to be first;—a New Examiner (Wood of St. John's, who is reckon'd the first Mathematician in the University, for Waring doesn't reside) was call'd solely to examine Peacock & me only.—but by this new Plan nothing is yet determin'd.—So Wood is to examine us again to-morrow morning.

Thursday evening.

Peacock is declar'd first & I second,—Smith of this Coll. is either 8th or 9th & Lucas is either 10th or 11th.—Poor Quiz Carver is one of the *οἱ πολλοί*;—I'm perfectly *satisfied* that the Senior Wranglership is Peacock's due, but *certainly* not so very undisputably as Lax pleases to represent it—I understand that *he* asserts 'twas 5 to 4 in Peacock's favor. Now Peacock & I have explain'd to each other how we went on, & can *prove indisputably* that it wasn't 20 to 19 in his favor;—I *cannot* therefore be displeas'd for being plac'd second, tho' I'm provov'd (*sic*) with Lax for his false report (so much beneath the Character of a Gentleman.)—

N.B. it is my very *particular Request* that you dont mention Lax's behaviour to me to any one.

Such was the form ultimately taken by the senate-house examination, a form which it retained substantially without alteration for nearly half-a-century. It soon became the sole test by which candidates were judged. The University was not obliged to grant a degree to anyone who performed the statutable exercises, and it was open to the senate to refuse to pass a supplicat for a bachelor's degree in arts unless the candidate had

presented himself for the senate-house examination. In 1790 James Blackburn, of Trinity, a questionist of exceptional abilities, was informed that in spite of his good disputations he would not be allowed a degree unless he also satisfied the examiners in the tripos. He accordingly solved one "very hard problem," though in consequence of a dispute with the authorities he refused to attempt any more*.

Henceforth the examination was compulsory on all candidates pursuing the normal course for the B.A. degree. In 1791 the University laid down rules† for its conduct, so far as it concerned poll-men, decreeing that those who passed were to be classified in four divisions or classes, the names in each class to be arranged alphabetically, but not to be printed on the official tripos lists. The classes in the final lists must be distinguished from the eight preliminary classes issued before the commencement of the examination. The men in the first six preliminary classes were expected to take honours; those in the seventh and eighth preliminary classes were *primâ facie* poll-men.

In 1799 the moderators announced‡ that for the future they would require every candidate to show

* H. Gunning, *Reminiscences*, second edition, London, 1855, vol. I, p. 182.

† See grace of 8 April 1791.

‡ Communicated by the moderators to fathers of colleges on 18 January 1799, and agreed to by the latter.

a competent knowledge of the first book of Euclid's *Elements*, arithmetic, vulgar and decimal fractions, simple and quadratic equations, and selected books by Locke and Paley. Paley's works seem to be held in esteem by modern divines, and his *Evidences*, though not his *Philosophy*, still remains (1917) one of the subjects of the Previous Examination, but his contemporaries thought less highly of his writings, or at any rate of his philosophy. Thus Best is quoted by Wordsworth* as saying of Paley's *Philosophy*, "The "tutors of Cambridge no doubt neutralize by their "judicious remarks, when they read it to their pupils, "all that is pernicious in its principles": so also Richard Watson, bishop of Llandaff, in his anecdotal autobiography†, says, in describing the senate-house examination in which Paley was senior wrangler, that Paley was afterwards known to the world by many excellent productions, "though there are some... "principles in his philosophy which I by no means "approve."

In 1800 the moderators extended to all men in the first four preliminary classes the privilege of being allowed to attempt the problem papers: hitherto this privilege had been confined to candidates placed in the first two classes. Until 1828 the problem papers were set in the evenings, and

* C. Wordsworth, *Scholae Academicae*, Cambridge, 1817, p. 123.
† *Anecdotes of the Life of Richard Watson*, London, 1817, p. 19.

in the rooms of the moderator, but many of the so-called problems were really pieces of bookwork or easy riders. No problems were ever set to the men in the seventh and eighth preliminary classes, which contained the poll-men.

The *University Calendars* date from 1796, and from 1802 to 1882 inclusive contain the printed tripos papers of the previous January. The papers from 1801 to 1820 and from 1838 to 1849 inclusive were also published in separate volumes, which are to be found in most public libraries. None of the bookwork papers of this time are now extant, but it is believed that they contained few, if any, riders. In looking at these papers to form an opinion of the knowledge current at the time, it is necessary to bear in mind that the text-books then in circulation were far from satisfactory.

The *Calendar* of 1802 contains a diffuse account of the examination. It commences as follows:

> On the Monday morning, a little before eight o'clock, the students, generally about a hundred, enter the Senate-House, preceded by a master of arts, who on this occasion is styled the father of the College to which he belongs. On two pillars at the entrance of the Senate-House are hung the classes and a paper denoting the hours of examination of those who are thought most competent to contend for honours. Immediately after the University clock has struck eight, the names are called over, and the absentees, being marked, are subject to certain fines. The classes to be

examined are called out, and proceed to their appointed tables, where they find pens, ink, and paper provided in great abundance. In this manner, with the utmost order and regularity, two-thirds of the young men are set to work within less than five minutes after the clock has struck eight. There are three chief tables, at which six examiners preside. At the first, the senior moderator of the present year and the junior moderator of the preceding year. At the second, the junior moderator of the present, and the senior moderator of the preceding year. At the third, two moderators of the year previous to the two last, or two examiners appointed by the Senate. The two first tables are chiefly allotted to the six first classes; the third, or largest, to the *οἱ πολλοί*.

The young men hear the propositions or questions delivered by the examiners; they instantly apply themselves; demonstrate, prove, work out and write down, fairly and legibly (otherwise their labour is of little avail) the answers required. All is silence; nothing heard save the voice of the examiners; or the gentle request of some one, who may wish a repetition of the enunciation. It requires every person to use the utmost dispatch; for as soon as ever the examiners perceive anyone to have finished his paper and subscribed his name to it another question is immediately given....

The examiners are not seated, but keep moving round the tables, both to judge how matters proceed and to deliver their questions at proper intervals. The examination, which embraces arithmetic, algebra, fluxions, the doctrine of infinitesimals and increments, geometry, trigonometry, mechanics, hydrostatics, optics, and astronomy, in all their various gradations, is varied according to circumstances: no one can anticipate a question, for in the course of five minutes he may be dragged from Euclid to Newton, from

the humble arithmetic of Bonnycastle to the abstruse analytics of Waring. While this examination is proceeding at the three tables between the hours of eight and nine, printed problems are delivered to each person of the first and second classes; these he takes with him to any window he pleases, where there are pens, ink, and paper prepared for his operations.

The examination began at eight o'clock in the morning. At nine the papers had to be given up, and half-an-hour was allowed for breakfast. At half-past nine the candidates came back, and were examined in the way described above till eleven, when the senate-house was again cleared. An interval of two hours then took place. At one o'clock all returned to be again examined. At three the senate-house was cleared for half-an-hour, and, on the return of the candidates, the examination was continued till five. At seven in the evening the first four classes went to the senior moderator's rooms to solve problems. They were finally dismissed for the day at nine, after eight hours of examination. The work of Tuesday was similar to that of Monday: Wednesday was partly devoted to logic and moral philosophy.

At eight o'clock on Thursday morning a first list was published with all candidates of about equal merits bracketed. Until nine o'clock a candidate had the right to challenge anyone above him to an examination to see which was the better. At

nine a second list came out, and a candidate's right of challenge was then confined to the bracket immediately above his own. If he proved himself the equal of or better than the man so challenged his name was transferred to the upper bracket. To challenge and then to fail to substantiate the claim to removal to a higher bracket was considered rather ridiculous. Revised lists were published at eleven, three, and five, according to the results of the examination during that day. At five the whole examination ended. The proctors, moderators, and examiners then retired to a room under the public library to prepare the list of honours, which was sometimes settled in a few hours, but sometimes not before two or three the next morning. The name of the senior wrangler was generally announced at midnight, and the rest of the list the next morning. In 1802 there were eighty-six candidates for honours, and they were divided into fifteen brackets, the first and second brackets containing each one name only, and the third bracket four names.

It is clear from the above account that the competition fostered by the examination had developed so much as to threaten to impair its usefulness as guiding the studies of the men. On the other hand, there can be no doubt that the carefully devised arrangements for obtaining an accurate order of merit stimulated the best men to throw all their

energies into the work for the examination. It is easy to point out the double-edged result of a strict order of merit. The problem before the University was to retain its advantages while checking any abuses to which it might lead.

It was the privilege of the moderators to entertain the proctors and some of the leading resident mathematicians the night before the issue of the final list, and to communicate that list in confidence to their guests. This pleasant custom survived till 1884. I revived the practice in 1890 when acting as senior moderator, but it seems to have now ceased.

In 1806 Sir Frederick Pollock was senior wrangler, and in 1869 in answer to an appeal from De Morgan for an account of the mathematical study of men at the beginning of the century he wrote a letter* which is sufficiently interesting to bear reproduction:

I shall write in answer to your inquiry, *all* about my books, my study, and my degree, and leave you to settle all about the proprieties which my letter may give rise to, as to egotism, modesty, &c. The only books I read the first year were Wood's *Algebra* (as far as quadratic equations), Bonnycastle's ditto, and *Euclid* (Simpson's). In the second year I read Wood (beyond quadratic equations), and Wood and Vince, for what they called the *branches*. In the third year I read the *Jesuit's* Newton and Vince's *Fluxions*; these were all the *books*, but there were certain MSS. floating about

* *Memoir of A. De Morgan*, London, 1882, pp. 387–392.

which I copied—which belonged to Dealtry, second wrangler in Kempthorne's year. I have no doubt that I had read less and seen fewer books than any senior wrangler of about my time, or any period since; but what I knew I knew thoroughly, and it was completely at my fingers' ends. I consider that I was the last *geometrical* and *fluxional* senior wrangler; I was not up to the *differential* calculus, and never acquired it. I went up to college with a knowledge of Euclid and algebra to quadratic equations, nothing more; and I never read any second year's lore during my first year, nor any third year's lore during my second; my *forte* was, that what I *did* know I *could produce at any moment with* PERFECT *accuracy*. I could repeat the first book of Euclid word by word and letter by letter. During my first year I was not a "*reading*" man (so called); I had no expectation of honours or a fellowship, and I attended all the lectures on all subjects—Harwood's anatomical, Wollaston's chemical, and Farish's mechanical lectures—but the examination at the end of the first year revealed to me my powers. I was not only in the first class, but it was generally understood I was *first* in the first class; neither I nor any one for me expected I should get in at all. Now, as I had taken no pains to prepare (taking, however, marvellous pains while the examination was going on), I knew better than any one else the value of my *examination qualities* (great rapidity and perfect accuracy); and I said to myself, "If "you're not an ass, you'll be senior wrangler"; and *I took to* "*reading*" *accordingly*. A curious circumstance occurred when the Brackets came out in the Senate-house declaring the result of the examination: I saw at the top the name of Walter *bracketed alone* (as he was); in the bracket below were *Fiott*, *Hustler*, *Jephson*. I looked down and could not find my own name till I got to Bolland, when my pride took fire, and I said, "I must have beaten *that man*, so I will

"look up again"; and on looking up carefully I found the nail had been passed through my name, and I was at the top bracketed *alone*, even above Walter. You may judge what my feelings were at this discovery; it is the only instance of two such brackets, and it made my fortune—that is, made me independent, and gave me an immense college reputation. It was said I was more than half of the examination before any one else. The two moderators were Hornbuckle, of St John's, and Brown (Saint Brown), of Trinity. The Johnian congratulated me. I said perhaps I might be challenged; he said, "Well, if you are you're "quite safe—you may sit down and do nothing, and no "one would get up to you in a whole day."...

Latterly the Cambridge examinations seem to turn upon very different matters from what prevailed in my time. I think a Cambridge education has for its object to make good members of society—not to extend science and make profound mathematicians. The tripos questions in the Senate-house ought not to go beyond certain limits, and geometry ought to be cultivated and encouraged much more than it is.

To this De Morgan replied:

Your letter suggests much, because it gives possibility of answer. The *branches* of algebra of course mainly refer to the second part of Wood, now called the theory of equations. Waring was his guide. Turner—whom you must remember as head of Pembroke, senior wrangler of 1767—told a young man in the hearing of my informant to be sure and attend to quadratic equations. "It was a quadratic," said he, "made me senior wrangler." It seems to me that the Cambridge *revivers* were [Woodhouse,] Waring, Paley, Vince, Milner.

You had Dealtry's MSS. He afterwards published a very good book on fluxions. He merged his mathematical

fame in that of a Claphamite Christian. It is something to know that the tutor's MS. was in vogue in 1800–1806.

Now—how did you get your conic sections? How much of Newton did you read? From Newton direct, or from tutor's manuscript?

Surely Fiott was our old friend Dr Lee. I missed being a pupil of Hustler by a few weeks. He retired just before I went up in February 1823. The echo of Hornbuckle's answer to you about the challenge has lighted on Whewell, who, it is said, wanted to challenge Jacob, and was answered that he could not beat [him] if he were to write the whole day and the other wrote nothing. I do not believe that Whewell would have listened to any such dissuasion.

I doubt your being the last fluxional senior wrangler. So far as I know, Gipps, Langdale, Alderson, Dicey, Neale, may contest this point with you.

The answer, dated 7 August 1869, of Sir Frederick Pollock to these questions was as follows:

You have put together as *revivers* five very different men. Woodhouse was better than Waring, who could not prove Wilson's (Judge of C. P.) guess about the property of prime numbers; but Woodhouse (I think) did prove it, and a beautiful proof it is. Vince was a bungler, and I think utterly insensible of mathematical beauty.

Now for your questions. I did not get my conic sections from Vince. I copied a MS. of Dealtry. I fell in love with the cone and its sections, and everything about it. I have never forsaken my favourite pursuit; I delighted in such problems as two spheres touching each other and also the inside of a hollow cone, &c. As to Newton, I read a good deal (men *now* read nothing), but I read much of the notes. I detected a blunder which nobody seemed to be aware of. Tavel, tutor of Trinity, was not; and he argued very favourably

of me in consequence. The application of the Principia I got from MSS. The blunder was this: in calculating the resistance of a globe at the end of a cylinder oscillating in a resisting medium they had forgotten to notice that there is a difference between the resistance to a globe and a circle of the same diameter.

The story of Whewell and Jacob cannot be true. Whewell was a very, *very* considerable man, I think not a *great* man. I have no doubt Jacob beat him in accuracy, but the supposed answer *cannot* be true; it is a mere echo of what actually passed between me and Hornbuckle on the day the Tripos came out—for the truth of which I vouch. I think the examiners are taking too *practical* a turn; it is a waste of time to calculate *actually* a longitude by the help of logarithmic tables and lunar observations. It would be a fault not to know *how*, but a greater to be handy at it.

A few minor changes in the senate-house examination were made in 1808*. A fifth day was added to the examination. Of the five days thus given up to it three were devoted to mathematics, one to logic, philosophy, and religion, and one to the arrangement of the brackets. Apart from the evening paper the examination on each of the first three days lasted six hours: of these eighteen hours, eleven were assigned to bookwork and seven to problems. The problem papers were set from six to ten in the evening.

A letter from Whewell, dated 19 January 1816, thus describes his examination in the senate-house†:

* See graces, 15 December 1808.

† S. Douglas, *Life of W. Whewell*, London, 1881, p. 20.

Jacob. Whewell. Such is the order in which we are fixed after a week's examination....I had before been given to understand that a great deal depended upon being able to write the greatest possible quantity in the smallest time, but of the rapidity which was actually necessary I had formed the most distant idea. I am upon no occasion a quick writer, and upon subjects where I could not go on without sometimes thinking a little I soon found myself considerably behind. I was therefore surprised, and even astonished, to find myself bracketed off, as it is called, in the second place; that is, on the day when a new division of the classes is made for the purpose of having a closer examination of the respective merits of men who come pretty near to each other, I was not classed with anybody, but placed alone in the second bracket. The man who is at the head of the list is of Caius College, and was always expected to be very high, though I do not know that anybody expected to see him so decidedly superior as to be bracketed off by himself.

The tendency to cultivate mechanical rapidity was a grave evil, and lasted long after Whewell's time. According to rumour the highest honours in 1845 were obtained by assiduous practice in writing*.

The devotion of the Cambridge school to geometrical and fluxional methods had led to its isolation from contemporary continental mathematicians. Early in the nineteenth century the evil consequence of this began to be recognized; and it was felt to be little less than a scandal that the researches of

* For a contemporary account of this, see C. A. Bristed, *Five Years in an English University*, New York, 1852, pp. 233–239.

Lagrange, Laplace, and Legendre were unknown to many Cambridge mathematicians save by repute. An attempt to explain the notation and methods of the calculus as used on the continent was made by Woodhouse, later professor in the University, who stands out as the apostle of the new movement.

It is doubtful if Woodhouse could have brought analytical methods into vogue by himself; but his views were enthusiastically adopted by three students, Peacock, Babbage, and Herschel, who succeeded in carrying out the reforms he had suggested. They created an Analytical Society which Babbage explained was formed to advocate "the "principles of pure *d*-ism as opposed to the *dot*-age of "the University." The character of the instruction in mathematics at the University has at all times largely depended on the text-books in use, and the importance of good books of this class was emphasized by a traditional rule that questions should not be set on a new subject in the tripos unless it had been discussed in some treatise suitable and available for Cambridge students*. Hence the importance attached to the publication of the work on analytical trigonometry by Woodhouse in 1809, and of the works on the differential calculus issued by members of the Analytical Society in 1816 and 1820.

* See *ex. gr.* the grace of 14 November 1827, referred to below.

In 1817 Peacock, who was moderator, introduced the symbols for differentiation into the papers set in the senate-house examination; his colleague, however, continued to use the fluxional notation. Peacock himself wrote on 17 March 1817 (*i.e.* shortly after the examination) on the subject as follows*:

> I assure you...that I shall never cease to exert myself to the utmost in the cause of reform, and that I will never decline any office which may increase my power to effect it. I am nearly certain of being nominated to the office of Moderator in the year 1818–19, and as I am an examiner in virtue of my office, for the next year I shall pursue a course even more decided than hitherto, since I shall feel that men have been prepared for the change, and will then be enabled to have acquired a better system by the publication of improved elementary books. I have considerable influence as a lecturer, and I will not neglect it. It is by silent perseverance only that we can hope to reduce the many-headed monster of prejudice, and make the University answer her character as the loving mother of good learning and science.

In 1818 all candidates for honours, that is, all men in the first six preliminary classes, were allowed to attempt the problems: this change was made by the moderators.

In 1819 Peacock, who was again moderator, induced his colleague to adopt the new notation. It was employed in the next year by Whewell, and in the following year by Peacock again. Henceforth

* *Proceedings of the Royal Society*, London, 1859, vol. IX, pp. 538–539.

the calculus in its modern language and analytical methods were freely used, new subjects were introduced, and for many years the examination provided a mathematical training fairly abreast of the times.

By this time the disputations had ceased to have any immediate effect on a man's place in the tripos. Thus Whewell*, writing about his duties as moderator in 1820, said:

> You would get very exaggerated ideas of the importance attached to it [an Act] if you were to trust Cumberland; I believe it was formerly more thought of than it is now. It does not, at least immediately, produce any effect on a man's place in the tripos, and is therefore considerably less attended to than used to be the case, and in most years is not very interesting after the five or six best men: so that I look for a considerable exercise of, or rather demand for, patience on my part. The other part of my duty in the Senate House consists in manufacturing wranglers, senior optimes, etc. and is, while it lasts, very laborious.

Of the examination itself in this year he wrote as follows†:

> The examination in the Senate House begins to-morrow, and is rather close work while it lasts. We are employed from seven in the morning till five in the evening in giving out questions and receiving written answers to them; and when that is over, we have to read over all the papers which

* *Whewell's Writings and Correspondence*, ed. Todhunter, London, 1876, vol. II, p. 36.

† S. Douglas, *Life of Whewell*, London, 1881, p. 56.

we have received in the course of the day, to determine who have done best, which is a business that in numerous years has often kept the examiners up the half of every night; but this year is not particularly numerous. In addition to all this, the examination is conducted in a building which happens to be a very beautiful one, with a marble floor and a highly ornamented ceiling; and as it is on the model of a Grecian temple, and as temples had no chimneys, and as a stove or a fire of any kind might disfigure the building, we are obliged to take the weather as it happens to be, and when it is cold we have the full benefit of it—which is likely to be the case this year. However, it is only a few days, and we have done with it.

A sketch of the examination in the previous year from the point of view of an examinee was given by J. M. F. Wright*, but there is nothing of special interest in it.

Sir George B. Airy† gave the following sketch of his recollections of the reading and studies of undergraduates of his time and of the tripos of 1823, in which he had been senior wrangler:

At length arrived the Monday morning on which the examination for the B.A. degree was to begin.... We were all marched in a body to the Senate-House and placed in the hands of the Moderators. How the "candidates for "honours" were separated from the *οἱ πολλοί* I do not know, I presume that the Acts and the Opponencies had something to do with it. The honour candidates were divided into

* *Alma Mater*, London, 1827, vol. II, pp. 58–98.

† See *Nature*, vol. xxxv, 24 February 1887, pp. 397–399. See also his *Autobiography*, Cambridge, 1896, chapter ii.

six groups: and of these Nos. 1 and 2 (united), Nos. 3 and 4 (united), and Nos. 5 and 6 (united), received the questions of one Moderator. No. 1, Nos. 2 and 3 (united), Nos. 4 and 5 (united), and No. 6, received those of the other Moderator. The Moderators were reversed on alternate days. There were no printed question-papers: each examiner had his bound manuscript of questions, and he read out his first question; each of the examinees who thought himself able proceeded to write out his answer, and then orally called out "Done." The Moderator, as soon as he thought proper, proceeded with another question. I think there was only one course of questions on each day (terminating before 3 o'clock, for the Hall dinner). The examination continued to Friday mid-day. On Saturday morning, about 8 o'clock, the list of honours (manuscript) was nailed on the door of the Senate House.

It must be remembered that for students pursuing the normal course the senate-house examination still provided the only avenue to a degree. That examination involved a knowledge of the elements of moral philosophy and theology, an acquaintance with the rules of formal logic, and the power of reading and writing scholastic Latin, but mathematics was the predominant subject, and this led to a certain one-sidedness in education. The evil of this was generally recognized, and in 1822 various reforms were introduced in the university curriculum; in particular the Previous Examination was established for students in their second year, the subjects being prescribed Greek and Latin works,

a Gospel, and Paley's *Evidences*. Set classical books were introduced in the final examination of pollmen; and another honour or tripos examination was established for classical students. These alterations came into effect in 1824; and henceforth the senate-house examination, so far as it related to mathematical students, was known as the Mathematical Tripos.

In 1827 the scheme of examination in the mathematical tripos was revised. By regulations* which came into operation in January 1828, four days, exclusive of the day of arranging the brackets, were devoted to the examination; the number of hours of examination was twenty-three, of which seven were assigned to problems. On the first two days all the candidates had the same questions proposed to them, inclusive of the evening problems, and the examination on those days excluded the higher and more difficult parts of mathematics, in order, in the words of the report, "that the candidates for honours may "not be induced to pursue the more abstruse and "profound mathematics, to the neglect of more "elementary knowledge." Accordingly, only such questions as could be solved without the aid of the differential calculus were set on the first day, and those set on the second day involved only its elementary applications. The classes were reduced

* See grace, 14 November 1827.

to four, determined as before by the exercises in the schools.

The regulations of 1827 definitely prescribed that all the papers should be printed. They are also noticeable as being the last which gave the examiners power to ask *vivâ voce* questions, though such questions were restricted to asking about "propositions contained in the mathematical works "commonly in use at the University, or examples "and explanations of such propositions." It was further recommended that no paper should contain more questions than well-prepared students could be expected to answer within the time allowed for it, but that if any candidate, before the end of the time, had answered all the questions in the paper, the examiners might propose additional questions *vivâ voce*. The power of granting honorary optime degrees now ceased; it had already fallen into abeyance. Henceforth the examination was conducted under definite rules, and I no longer concern myself with its traditions.

In the same year as these changes became effective the examination for the poll degree was separated from the tripos with different sets of papers and a different schedule of subjects*. It was, however, still nominally considered as forming part of the senate-house examination, and until 1858 those

* See grace, 21 May 1828, confirming a report of 27 March 1828.

who obtained a poll degree were arranged in four classes, described as fourth, fifth, sixth, and seventh, as if in continuation of the junior optimes or third class of the tripos.

In the course henceforth ordained for the poll or ordinary degree, the examination, later known as "the General," represents that part of the old senate-house examination which was intended for the poll-men, but gradually it was moved to an earlier period in the normal course taken by the men. In 1851 admission to the classical tripos* was allowed to others than those who passed the mathematical tripos, and this provided another avenue to a degree entirely independent of the old senate-house examination. In 1852 another set of examinations, at first called "the Professor's Ex-"aminations," and now somewhat modified and known as "the Specials," was instituted for all poll-men to take before they could qualify for a degree.

In 1858 the fiction that the poll examinations were part of the senate-house examination was abandoned, and subsequently they have been treated as providing an independent method of obtaining the degree: thus now the mathematical tripos is the sole representative of the old senate-house examination. Since 1858 numerous other

* See grace of 31 October 1849.

ways of obtaining a degree in arts have been established, and it is now possible to graduate by showing proficiency in very special, or even technical subjects.

Further changes in the mathematical tripos were introduced in 1833*. The duration of the examination, before the issue of the brackets, was extended to five days, and the number of hours of examination on each day was fixed at five and a half: seven and a half hours were assigned to problems. The examination on the first day was confined to subjects that did not require the differential calculus, and only the simplest applications of the calculus were permitted on the second and third days. During the first four days of the examination the same papers were set to all the candidates alike, but on the fifth day the examination was conducted according to classes. No reference was made to *vivâ voce* questions, though permission was reserved to re-examine candidates if it were found necessary: this right remained in force till 1848, but in fact was never used. In December 1834, a few unimportant details were amended.

Mr Earnshaw, the senior moderator in 1836, informed me that he believed that the tripos of that year was the earliest one in which all the papers were marked, and that in previous years the

* See grace of 6 April 1832.

examiners had partly relied on their impression of the answers given.

New regulations came into force* in 1839. The examination now lasted for six days, and continued as before for five hours and a half each day: eight and a half hours were assigned to problems. Throughout the whole examination the same papers were set to all candidates, and no reference was made to any preliminary classes. It was no doubt in accordance with the spirit of these changes that the acts in the schools should be abolished, but they were discontinued by the moderators of 1839 without the authority of the senate. The examination was for the future confined† to mathematics.

In the same year in which the new scheme came into force a proposal to reopen the subject was rejected on 6 March 1839.

The difficulty of bringing professorial lectures into relation with the needs of students has more than once been before the University. The desirability of it was emphasized by a syndicate in February 1843, which recommended conferences at stated intervals between the mathematical professors

* See grace of 30 May 1838.

† Under a badly-worded grace passed on 11 May 1842, on the recommendation of a syndicate on theological studies, candidates for mathematical honours were, after 1846, required to attend the poll examination on Paley's *Moral Philosophy*, the new testament and ecclesiastical history. This had not been the intention of the senate, and on 14 March 1855, a grace was passed making this clear.

and examiners. This report, which foreshadowed the creation of a Mathematical Board, was rejected by the senate on 31 March.

A few years later the scheme of the examination was again reconstructed by regulations* which came into effect in 1848. The duration of the examination was extended to eight days. The examination lasted in all forty-four and a half hours, twelve of which were devoted to problems. The first three days were assigned to specified elementary subjects; in the papers set on these days riders were to be set as well as bookwork, but the methods of analytical geometry and the calculus were excluded. After the first three days there was a short interval, at the end of which the examiners issued a list of those who had so acquitted themselves as to deserve mathematical honours. Only those whose names were contained in this list were admitted to the last five days of the examination, which was devoted to the higher parts of mathematics. After the conclusion of the examination the examiners, taking into account the whole eight days, brought out the list arranged in order of merit. No provision was made for any rearrangement of this list corresponding to the examination of the brackets. The arrangements of 1848 remained in force till 1873.

* See grace of 13 May 1846, confirming a report of 23 March 1846.

In the same year as these regulations came into force, a Board of Mathematical Studies (consisting of the mathematical professors, with the moderators and examiners for the current year and the two preceding years) was constituted * by the senate. From that time forward their minutes supply a permanent record of the changes gradually introduced into the tripos. I do not allude to subsequent changes which only concern unimportant details of the examination.

In May 1849, the board issued a report in which, after giving a review of the past and existing state of the mathematical studies in the University, they recommended that the mathematical theories of electricity, magnetism, and heat should not be admitted as subjects of examination. In the following year they issued a second report, in which they recommended the omission of elliptic integrals, Laplace's coefficients, capillary attraction, and the figure of the earth considered as heterogeneous, as well as a definite limitation of the questions in the lunar and planetary theories. In making these recommendations the board were only recognizing what had become the practice in the examination.

I may, in passing, mention a curious attempt which was made in 1853 and 1854 to assist candidates to estimate the relative difficulty of the

* See grace of 31 October 1848.

questions asked. This was effected by giving to the candidates, at the same time as the examination paper, a slip of paper on which the marks assigned for the book-work and rider for each question were printed. I mention the fact merely because these things are rapidly forgotten and not because it is of any intrinsic value. I possess a complete set of slips which came to me from Todhunter.

In 1856 there was an amusing difference of opinion between the vice-chancellor and the moderators. The vice-chancellor issued a notice to say that for the convenience of the University he had directed the tripos lists to be published at 8.0 a.m. as well as at 9.0 a.m., but when members of the senate arrived at 8.0 the moderators said that the list should not be read until 9.0.

Considerable changes in the scheme of examination were introduced in 1873. On 5 December 1865, the board had recommended the addition of Laplace's coefficients and the figure of the earth considered as heterogeneous as subjects of the examination; the report does not seem to have been brought before the senate, but attention was called to the fact that certain departments of mathematics and mathematical physics found no place in the tripos schedules, and were neglected by most students. Accordingly, a syndicate was appointed on 6 June 1867, to consider the matter, and a scheme drawn

up by them was approved in 1868* and came into effect in 1873.

The new scheme of examination was framed on the same lines as that of 1848. The subjects in the first three days were left unchanged, but an extra day was added, devoted to the elements of mathematical physics. The essence of the modification was the greatly extended range of subjects introduced into the schedule of subjects for the last five days, and their arrangement in divisions; the total marks awarded to the questions in each of the five divisions being approximately in a proportion to the total marks assigned to the questions in the first three days as 2, 1, 1, 1, 2/3 to 1 respectively. Under these regulations the number of examiners was increased from four to five.

The assignment of marks to groups of subjects was made under the impression that the best candidates would concentrate their abilities on a selection of subjects from the various divisions. But it was found that, unless the questions were made extremely difficult, more marks could be obtained by reading superficially all the subjects in the five divisions than by attaining real proficiency in a few of the higher ones: while the wide range of subjects rendered it practically impossible to

* See grace of 2 June 1868. It was carried by a majority of only five in a house of 75.

cover all the ground thoroughly in the time allowed. The failure was so pronounced that in 1877 another syndicate was appointed to consider the mathematical studies and examinations of the University. They presented an elaborate scheme, but on 13 May 1878, some of the most important parts of it were rejected; their subsequent proposals, accepted on 21 November 1878 (by 62 to 49), represented a compromise which pleased few members of the senate*.

Under the new scheme which came into force in 1882 the tripos was divided into two portions: the first portion was taken at the end of the third year of residence, the range of subjects being practically the same as in the regulations of 1848, and the result brought out in the customary order of merit. The second portion was held in the following January, and was open only to those who had been wranglers in the preceding June. This portion was confined to higher mathematics and appealed chiefly to specialists: the result was brought out in three classes, each arranged in alphabetical order. The moderators and examiners conducted the whole examination without any extraneous aid.

In the next year or two further amendments

* See graces of 17 May 1877; 29 May 1878; and 21 November 1878: and the *Cambridge University Reporter*, 2 April, 14 May, 4 June, 29 October, 12 November, and 26 November 1878.

were made*, the second part of the examination being moved to the June of the fourth year, and thrown open to all men who had graduated in the tripos of the previous June. At the same time the conduct of the examination in part II was transferred to four examiners nominated by the board: this put it largely under the control of the professors. The range of subjects of part II was also greatly extended, and candidates were encouraged to select only a few of them. It was further arranged that part I might be taken at the end of a man's second year of residence, though in that case it would not qualify for a degree. A student who availed himself of this leave could take part II at the end either of his third or of his fourth year as he pleased.

The general effect of these changes was to destroy the homogeneity of the tripos. Objections to the new scheme were soon raised. Especially, it was said—whether rightly or wrongly—that part I contained too many technical subjects to serve as a general educational training for any save mathematicians; that the distinction of a high place in the historic list produced on its results tended to prevent the best men taking it in their second year, though by this time they had read enough to be able to do so; and that part II was so constructed as

* See graces of 13 December 1883; 12 June 1884; 10 February 1885; 29 October 1885; and 1 June 1886.

to appeal only to professional mathematicians, and thus the higher branches of mathematics were neglected in the University by all save a few specialists.

Whatever value be attached to these opinions, the number of students studying mathematics fell rapidly under the scheme of 1886. In 1899 the board proposed* further changes. These seemed to some members of the senate to be likely still further to decrease the number of men who took up the subject as one of general education; and the two main proposals were rejected, 15 February 1900 by votes of 151 to 130 and 161 to 129.

A few years later, in 1907†, the board brought forward another scheme, proposing changes so sweeping as almost to destroy the identity of the tripos. Under this the examination in part II was abolished —a change on which all parties were agreed. There was introduced an examination, called part I, confined to elementary mathematics, which could be taken as early as the second term of residence, and for which in certain cases of failure a student could present himself again, but this, although an examination for honours, did not qualify for a degree.

* See reports dated 7 November 1899, and 20 January 1900.

† See the reports of the special board, *Cambridge University Reporter*, 29 May and 20 November 1906, and the graces of 2 February 1907. The voting on the first grace was 776 placet and 644 non-placet.

In the new part II, taken normally at the end of the third year of residence and qualifying for a degree, candidates were given some option in the subjects of their examination, and order of merit was abolished. The first examination under this scheme was held in 1908.

A remarkable feature in the history of the Cambridge mathematical school is the fact that for nearly two hundred years most students were accustomed to rely for preparation for it on work done with a private tutor or "Coach." Towards the close of the seventeenth century we first read of these "pupil-mongers" (among whom Laughton of Clare was the most famous) who made it their business to prepare men for their "acts."

With the rise of the senate-house examination the importance of this class of teachers increased, for success in that examination was regarded as the crown of the academic course, and brought with it, in the shape of a fellowship, an immediate competence with a reasonable prospect of an assured career. It was the business of private tutors to prepare their pupils for the examination, and among those who in this way came to the front shortly after the middle of the eighteenth century were Richard Watson, John Wilson whose name is still known by its association with a proposition in the theory of numbers, and Robert Thorp. The last named

teacher was described, about 1761, as being "of "eminent use to young men in preparing them for "the Senate-House Examinations and peculiarly "successful"; and it was added that "one young "man of no shining reputation with the assistance "of Mr Thorp's tuition had stood at the head of "wranglers."

In a grace of the senate, passed in 1781, it is stated that almost all sophs then resorted to private tuition, and for more than a century subsequently, the practice was well established. These were the men who really directed the reading of the students. Even non-residents, if reputed to be successful coaches, drew pupils. Thus John Dawson, a medical practitioner at Sedbergh, regularly prepared pupils in the vacations for the senate-house examination, and at least eleven of the senior wranglers between 1781 and 1800 are known to have studied under him.

During the nineteenth century the system developed under two remarkable teachers, William Hopkins, 1793–1866, and Edward John Routh, 1831–1907, to whom the vast majority of the better known Cambridge mathematicians of this century owed most of what they learnt in their undergraduate days. Hopkins in the twenty-two years from 1828–49, had among his pupils one hundred and seventy-five wranglers, of whom seventeen were

senior, forty-four in one of the first three places, and one hundred and eight in one of the first ten places. So too Routh, in the thirty-one years from 1858–88, had between six hundred and seven hundred pupils, most of whom became wranglers, twenty-seven being senior in the tripos and forty-one Smith's prizemen. To organize teaching on this scale demanded rare gifts.

Perhaps it may be of interest to describe, by way of example, the general features of Routh's system. He gave catechetical lectures three times a week to classes of eight or ten men of approximately equal knowledge and ability. The work to be done between two lectures was heavy, and included the solution of some eight or nine fairly hard examples on the subject of the lectures. Examination papers were also constantly set on tripos lines (bookwork and riders), while there was a weekly paper of problems set to all pupils alike. All papers sent up were marked in public, the comments on them in class were generally brief, and, to save time, solutions of the questions were circulated in manuscript. Teaching also was supplemented by manuscripts on the subjects. Finally to the more able students he was accustomed, shortly before their tripos, to give memoirs or books for analyses and commentaries. The course for the first three years and the two earlier long vacations covered all the subjects of the

examination—the last long vacation and the first term of the fourth year were devoted to a thorough revision.

Under Hopkins and Routh there was no trace of what is called cramming; they might say that a particular demonstration was so long that it could not be required in the tripos, but none the less they expected their pupils to master it. The system had faults, but it had the merit of providing a systematic grounding in a wide field of subjects. The effectiveness of teaching of this kind was dependent on intimate constant personal intercourse, and the importance of this cannot be overrated. The scandal of the system consisted in the fact that a man was compelled to pay heavy fees to the University and his College for instruction, and yet found it advantageous at his own expense to go elsewhere to get it.

During the last quarter of the nineteenth century college lecturers began to share with the coaches the general direction of studies. Post-graduate work was also to some extent brought under the influence of professors and university lecturers—these not uncommonly suggesting subjects for dissertations for fellowships, Smith's prizes, etc. But the students thus influenced were not numerous, and it still remains true that the majority of mathematical undergraduates are so out of touch

with the professors in the subject as to be unacquainted even with their personal appearance.

Such was the mathematical tripos and its history. Whatever its demerits, it dominated the situation, and Cambridge mathematics and mathematicians of the nineteenth century were the direct product of the system it embodied. Judged by the output, I do not think it can be said to have resulted in failure; and perhaps Cayley, Sylvester, Adams, Green, Stokes, Kelvin, and Maxwell—to mention no others—were none the worse for having been compelled to go through the course.

The reconstitution in 1907 of the tripos, and the destruction of many of its distinctive features must profoundly modify the future history of mathematics at Cambridge, but forecasts on such a theme would be useless.

The curious origin of the term tripos has been repeatedly told, and an account of it may fitly close this chapter. Formerly there were three principal occasions on which questionists were admitted to the title or degree of bachelor. The first of these was at the comitia priora, held on Ash-Wednesday, for the best men in the year. The next was at the comitia posteriora, which was held a few weeks later, and at which any student who had distinguished himself in the quadragesimal exercises subsequent to Ash-Wednesday had his seniority reserved to him.

Lastly, there was the comitia minora, for students who had in no special way distinguished themselves.

In the fifteenth century an important part in the ceremony on each of these occasions was taken by a certain "ould bachilour," who sat upon a three-legged stool or tripos before the proctors and tested the abilities of the would-be graduates by arguing some question with the "eldest son," who was selected from them as their representative. To assist the latter in what might be an unequal contest his "father," that is, the officer of his college who was to present him for his degree, was allowed to come to his assistance.

The discussion took place in Great St Mary's Church, and marked the admission of the student to a position with new responsibilities, while the season of Lent was chosen with a view to bring this into prominence. The puritan party objected to the semi-ecclesiastical character of the proceedings, and in the course of the sixteenth century set themselves to bring the ceremony into disrepute. The part played by the questionist now became purely formal, though a serious debate still sometimes took place between the father of the senior questionist and a regent master who represented the University: this, however, came to be prefaced by a speech by the bachelor, who was now called Mr Tripos, just as we speak of a judge as the bench, or of a rower

as an oar. Ultimately public opinion permitted Mr Tripos to say pretty much what he pleased, so long as it was not dull and was scandalous. The speeches he delivered or the verses he recited were generally printed and preserved by the registrary, and were known as the tripos verses: originally they referred to the subjects of the disputations then propounded. The earliest copies now extant are those for 1575.

The university officials, to whom the personal criticisms in which Mr Tripos indulged were by no means pleasing, repeatedly exhorted him to remember "while exercising his privilege of humour, "to be modest withal." In 1740, says Mullinger*, "the authorities after condemning the excessive "license of the tripos announced that the comitia "at Lent would in future be conducted in the "Senate-House; and all members of the University, "of whatever order or degree, were forbidden to "assail or mock the disputants with scurrilous jokes "or unseemly witticisms. About the year 1747–8, "the moderators initiated the practice of printing "the honour lists on the back of the sheets con-"taining the tripos verses, and after the year 1755 "this became the invariable practice. By virtue "of this purely arbitrary connection these lists

* J. B. Mullinger, *The University of Cambridge*, Cambridge, vol. I, 1873, pp. 175–176.

"themselves became known as the tripos; and "eventually the examination itself, of which they "represented the results, also became known by "the same designation."

Mr Tripos ceased to deliver his speech about 1750, but the issue of tripos verses continued for nearly 150 years longer. During the latter part of this time they consisted of four sets of verses, usually in Latin, but occasionally in Greek, in which current topics in the University were treated lightly or seriously as the writer thought fit. They were written for the proctors and moderators by undergraduates or commencing bachelors, each of whom was supposed to receive a pair of white kid gloves in recognition of his labours. Thus gradually the word tripos changed its meaning "from a thing of "wood to a man, from a man to a speech, from a "speech to sets of verses, from verses to a sheet of "coarse foolscap paper, from a paper to a list of "names, and from a list of names to a system of "examination*."

In 1895 the proctors and moderators, without consulting the senate, sent in no verses, and thus, in spite of widespread regret, an interesting custom of many centuries standing was destroyed. In defence of this action, it was said that the custom had never been embodied in statute or ordinance,

* C. Wordsworth, *Scholae Academicae*, Cambridge, 1877, p. 21.

and thus was not obligatory, and further that its continuance was not of material benefit to anybody. Such arguments are not conclusive, and we may well regret the disappearance of historic ties unless it can be shown that they cause inconvenience, which of course in this case could not be asserted.

By way of supplement to the foregoing account, I append a list of those who have held or hold the various university mathematical chairs and lectureships.

The *Lucasian Professorship of Mathematics* was founded in 1663 by Henry Lucas. The successive occupants of the chair have been: Isaac Barrow, 1664–1669; Isaac Newton, 1669–1702; William Whiston, 1702–1711; Nicholas Saunderson (Sanderson), 1711–1739; John Colson, 1739–1760; Edward Waring, 1760–1798; Isaac Milner, 1798–1820; Robert Woodhouse, 1820–1822; Thomas Turton, 1822–1826; George Biddell Airy, 1826–1828; Charles Babbage, 1828–1839; Joshua King, 1839–1849; George Gabriel Stokes, 1849–1903; Joseph Larmor, 1903 *et seq.*

The *Plumian Professorship of Astronomy and Experimental Philosophy* was founded in 1704 by Thomas Plume. The successive occupants of the chair have been: Roger Cotes, 1707–1716; Robert Smith, 1716–1760; Anthony Shepherd, 1760–1796; Samuel Vince, 1796–1822; Robert Woodhouse, 1822–1828; George Biddell Airy, 1828–1836; James Challis, 1836–1883; George Howard Darwin, 1883–1912; Arthur Stanley Eddington, 1913 *et seq.*

The *Lowndean Professorship of Astronomy and Geometry* was founded in 1749 by Thomas Lowndes. The successive occupants of the chair have been: Roger Long, 1750–1771; John Smith, 1771–1795; William Lax, 1795–1836; George Peacock, 1836–1858; John Couch Adams, 1858–1892; Robert Stawell Ball, 1892–1913; Henry Frederick Baker, 1914 *et seq.*

The *Sadleirian Professorship of Pure Mathematics* was founded in 1863 from a benefaction given in 1710 by Lady Sadleir. The successive occupants of the chair have been: Arthur Cayley, 1863–1895; Andrew Russell Forsyth, 1895–1910; Ernest William Hobson, 1910 *et seq.*

The *Cavendish Professorship of Experimental Physics* was founded in 1871 by the University; the laboratory attached being built at the expense of the then Chancellor, the Duke of Devonshire. The successive occupants of the chair have been: James Clerk Maxwell, 1871–1879; John William, Baron Rayleigh, 1879–1884; Joseph John Thomson, 1884 *et seq.*

The *Professorship of Mechanism and Applied Mechanics*, with laboratories and shops attached, was founded by the University in 1875. The successive occupants of the chair have been: James Stuart, 1875–1890; James Alfred Ewing, 1890–1903; Bertram Hopkinson, 1903 *et seq.*

Five *Lectureships in Mathematics* were created in 1882 under the directions of Royal Commissioners, and subsequently two others (now reduced to one other) tenable, if desired, with one of the above, were founded. The successive holders have been: Joseph John Thomson, 1884; Andrew Russell Forsyth, 1884–1895; William Herrick Macaulay, 1884–1887; Richard Tetley Glazebrook, 1884–1898; Ernest William Hobson, 1884–1910; Joseph Larmor, 1885–1903; Richard Pendlebury, 1888–1901; Henry Frederick Baker, 1895–1914; Augustus Edward Hough Love, 1898–1899; Hector Munro Macdonald, 1899–1904; Herbert William Richmond, 1901 *et seq.*; George Ballard Mathews, 1903–1905; James Hopwood Jeans, 1904–1906, 1910–1912; John Gaston Leathem, 1905–1909; Robert Alfred Herman, 1906 *et seq.*; Edmund Taylor Whittaker, 1905–1906; Thomas James I'Anson Bromwich, 1909 *et seq.*; John Hilton Grace, 1901 *et seq.*; Godfrey Harold Hardy, 1914 *et seq.*; Arthur Berry, 1914 *et seq.*

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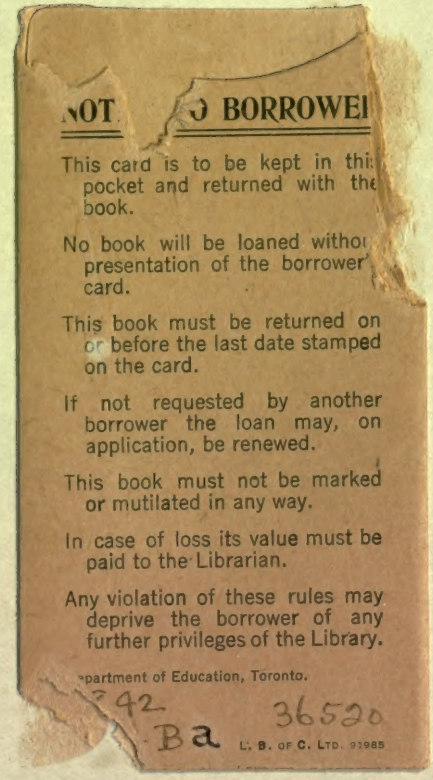
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